THE JOURNAL OF PHYSIOLOGY

EDITED FOR

THE PHYSIOLOGICAL SOCIETY

BY

H. B. BARLOW J. A. V. BATES J. BLIGH
J. R. BRONK P. C. CALDWELL J. DIAMOND
R. H. T. EDWARDS D. K. HILL L. L. IVERSEN
J. J. B. JACK D. H. JENKINSON B. R. JEWELL
N. JOELS J. F. LAMB J. LEE A. R. MARTIN
J. N. MILLS C. RASHBASS T. A. SEARS
P. D. WALL J. G. WIDDICOMBE G. WISEMAN
P. F. BAKER (*Secretary*) R. H. ADRIAN (*Chairman*)

Volume 236

1974

CAMBRIDGE UNIVERSITY PRESS

PUBLISHED BY
THE SYNDICS OF THE CAMBRIDGE UNIVERSITY PRESS
Bentley House, 200 Euston Road, London, NW1 2DB
American Branch: 32 East 57th Street, New York, N.Y. 10022

© The Physiological Society 1974

Printed in Great Britain at the University Printing House, Cambridge

CONTENTS OF VOLUME 236

No. 1 *January* 1974

PAGE

A kinetic description for sodium and potassium effects on ($Na^+ + K^+$)-adenosine triphosphatase: a model for a two-nonequivalent site potassium activation and an analysis of multiequivalent site models for sodium activation. By GEORGE E. LINDENMAYER, ARNOLD SCHWARTZ and HOWARD K. THOMPSON Jr. 1

Saturation of a shared mechanism which transports L-arginine and L-lysine into the brain of the living rat. By GUADALUPE BAÑOS, P. M. DANIEL and O. E. PRATT 29

Mechanical studies on the retractor bulbi muscle and its motor units in the cat. By GUNNAR LENNERSTRAND 43

Patterning in the regeneration of type I cutaneous receptors. By P. R. BURGESS, KATHLEEN B. ENGLISH, K. W. HORCH and L. J. STENSAAS 57

Plasma aldosterone, cortisol and corticosterone in the new-born guinea-pig. By K. W. MALINOWSKA and P. W. NATHANIELSZ . 83

The temperature dependence of the movement of sodium ions associated with nerve impulses. By L. B. COHEN and D. LANDOWNE 95

Electrophysiological investigation of GABA-mediated inhibition at the hermit crab neuromuscular junction. By JANET EARL and W. A. LARGE. 113

The spontaneous release of transmitter from insect nerve terminals as predicted by the negative binomial theorem. By D. REES . 129

Effects of thymol on the electrical and mechanical properties of the guinea-pig taenia coli. By Y. ITO and H. KURIYAMA . . 143

The significance of deep body temperature in regulating the concentration of thyroxine in the plasma of the pig. By S. E. EVANS and D. L. INGRAM. 159

Light-induced resistance changes in retinal rods and cones of the tiger Salamander. By A. LASANSKY and P. L. MARCHIAFAVA . 171

Mechanisms for differential block among single myelinated and non-myelinated axons by procaine. By DONALD N. FRANZ and ROGER S. PERRY 193

PAGE

Responses of bipolar cells in the retina of the turtle. By E. A. SCHWARTZ 211

A study of single axons in the cat's medial lemniscus. By A. G. BROWN, G. GORDON and R. H. KAY 225

The relationship of choline acetyltransferase activity at the neuromuscular junction to changes in muscle mass and function. By IVAN DIAMOND, GARY M. FRANKLIN and DALE MILFAY . . 247

No. 2 *January* 1974

Dynamic properties of inferior rectus muscle of the rat. By R. I. CLOSE and A. R. LUFF 259

The regulation of corneal hydration by a salt pump requiring the presence of sodium and bicarbonate ions. By STUART HODSON . 271

Two types of neurones in the myenteric plexus of duodenum in the guinea-pig. By G. D. S. HIRST, MOLLIE E. HOLMAN and I. SPENCE 303

The intervals between end-plate potentials in the frog are unlikely to be independently or exponentially distributed. By IRA COHEN, HIROSHI KITA and WILLIAM VAN DER KLOOT . . . 327

The stochastic properties of spontaneous quantal release of transmitter at the frog neuromuscular junction. By IRA COHEN, HIROSHI KITA and WILLIAM VAN DER KLOOT 341

Stochastic properties of spontaneous transmitter release at the crayfish neuromuscular junction. By IRA COHEN, HIROSHI KITA and WILLIAM VAN DER KLOOT 363

Does the vestibular apparatus play a role in the development of the visual system? By C. BLAKEMORE and J. PAPAIOANNOU . . 373

The kinetics of the reaction of carbon monoxide with fully oxygenated haemoglobin in solution and erythrocytes. By JOHN A. SIRS 387

The effect of antidiuretic hormone on human sweating. By JUDITH A. ALLEN and I. C. RODDIE 403

Anode break excitation in denervated rat skeletal muscle fibres. By M. W. MARSHALL and M. R. WARD 413

The influence of the splanchnic nerves on the external secretion, blood flow and electrical conductance of the cat pancreas. By T. E. BARLOW, J. R. GREENWELL, A. A. HARPER and T. SCRATCHERD . 421

PAGE

Synaptic connexions of two symmetrically placed giant serotonin-containing neurones. By G. A. COTTRELL and J. B. MACON . . 435

Levels of prostaglandins in human endometrium during the normal menstrual cycle. By J. DOWNIE, N. L. POYSER and M. WUNDERLICH 465

Release of endogenous noradrenaline from an isolated elastic artery. By CHRISTOPHER BELL 473

The effect of lowering the 5-hydroxytryptamine content of the rat spinal cord on analgesia produced by morphine. By MARTHE VOGT 483

No. 3 *February* 1974

Lipogenesis and insulin sensitivity of single fat cells. By J. GLIEMANN and J. VINTEN. With an Appendix by AA. VØLUND . 499

Two factors responsible for the development of denervation hypersensitivity. By ROSEMARY JONES and GERTA VRBOVÁ . . 517

Thermoregulatory responses to the injection of monoamines, acetylcholine and prostaglandins into a lateral cerebral ventricle of the echidna. By J. A. BAIRD, J. R. S. HALES and W. J. LANG . 539

Functional organization of a visual area in the posterior bank of the superior temporal sulcus of the rhesus monkey. By S. M. ZEKI 549

Ionic mechanism for the photoreceptor potential of the retina of *Bufo marinus*. By J. E. BROWN and L. H. PINTO 575

Sensitization and centre-surround antagonism in *Necturus* retina. By DWIGHT A. BURKHARDT 593

The role of the autonomic innervation in the control of glucagon release during hypoglycaemia in the calf. By S. R. BLOOM, A. V. EDWARDS and N. J. A. VAUGHAN 611

The oxygen and carbon monoxide capacities of foetal and adult blood. By I. C. GREGORY 625

The occurrence in and actions of amino acids on isolated supra oral sphincter preparations of the sea anemone *Actinia equina*. By R. F. CARLYLE 635

Absorption of folic acid by everted segments of rat jejunum. By J. A. BLAIR, I. T. JOHNSON and A. J. MATTY 653

PAGE

Organization of corticofugal neurones in somatosensory area II of the cat. By D. H. ATKINSON, J. J. SEGUIN and M. WIESENDANGER 663

The effect of sodium and calcium ions on the release of catecholamines from the adrenal medulla: sodium deprivation induces release by exocytosis in the absence of extracellular calcium. By ANNA LASTOWECKA and J. M. TRIFARÓ 681

Interocular transfer of a visual after-effect in normal and stereoblind humans. By DONALD E. MITCHELL and COLIN WARE . . 707

Conductance changes associated with the secretory potential in the cockroach salivary gland. By B. L. GINSBORG, C. R. HOUSE and E. M. SILINSKY 723

Effect of denervation on the adaptation of sarcomere number and muscle extensibility to the functional length of the muscle. By G. GOLDSPINK, C. TABARY, J. C. TABARY and G. TARDIEU . . 733

PROCEEDINGS OF THE PHYSIOLOGICAL SOCIETY

14–15 *September* 1973

DEMONSTRATIONS

PAGE

Lennon, J. J. An automatic system for continuous recording of the open-circuit potential and short-circuit current across isolated frog skin (T) . . . 1*P*

O'Regan, M. G. Measurement of drug effects on the electrical excitability of frog skin 1*P*

Crotty, T. P. The use of Rhodanile Blue and Polariser Red stains in histology (T) 2*P*

Hall, W. J. A cine recording of the glandular response in frog skin to prostaglandin E_1 (T) 2*P*

Kane, M. T. In vitro culture of pre-implantation rabbit embryos (T) . . . 2*P*

Crotty, T. P. & Sheehan, J. D. Examples of super 8 mm sound films for teaching physiology (T) 2*P*

Fitzgerald, O., Fitzgerald, P., McGeeney, K. F., Murphy, J. J. & O'Malley, E. A working demonstration of isolated pancreatic perfusion 2*P*

O'Connor, P. C. & Slater, P. An isolated innervated vascular preparation . . 3*P*

O'Neill, M., Shorten, E. & Whelton, M. J. Upper gastrointestinal endoscopy: the fibreoptic revolution (T) 3*P*

McCallum, W. D. A thermodilution method for recording blood flow in human umbilical vein 4*P*

Calvert, H., Grimley, J. & McCallum, W. D. A simple recorder for large fluid flows 6*P*

Cannon, P. J. & Mulvihill, T. P. An adaptation of simple mechanical kymograph to flat-bed paper-transport and electronic pen-recording units, modified for extra sensitivity 7*P*

Andrews, J. F. & Mercer, J. B. A transportable climatic chamber and system for indirect open-circuit metabolic studies 7*P*

Platts, R. G. S. & Wilson, P. Chronically implanted pulmonary arterial cuffs to separately measure oxygen uptake of either lung in the exercising dog (T) 8*P*

Henderson, Theresa C. & Luckwill, R. G. Single unit responses to temperature in new-born rabbits 8*P*

COMMUNICATIONS

Barrett, E. J. & Headon, D. R. The composition of rabbit skeletal muscle relaxing factor 10*P*

Barasi, S. & Roberts, M. H. T. The effects of stimulation of nucleus raphe and iontophoretically applied 5-hydroxytryptamine on spinal motoneurones. . 11*P*

Kernan, R. P. Cation fluxes in extensor digitorum longus muscles of rat following denervation 12*P*

Harvey, Carol A. & Milton, A. S. The effect of parachlorophenylalanine on the response of the conscious cat to intravenous and intraventricular bacterial pyrogen and to intraventricular prostaglandin E_1 . . . . . 14*P*

Hughes, G. M., Ryan, J. W. & Ryan, Una. Freeze-fractured lamellate bodies of *Protopterus* lung: a comparative study 15*P*

Hanson, Jennifer M., Morley, J. & Williams, T. J. Potentiation of increased vascular permeability by prostaglandins 16*P*

Cole, D. F. & Unger, W. G. The role of prostaglandins in the ocular response to trauma 18*P*

Hennessy, T., Lehane, M. & O'Laoire, S. The significance of myoelectrical activity in the canine stomach 19*P*

PAGE

Fitzgerald, O., McGeeney, K. F. & Murphy, J. J. Secretory response of the haemo-perfused isolated canine pancreas 20P

Close, R. I. & Luff, A. R. Contraction speed of the inferior rectus muscle of the rat (T) 21P

Davies, C. T. M., Few, J., Foster, K. G. & Sargeant, A. J. Plasma catecholamine concentration during exercise involving different muscle groups . . . 21P

Tonge, D. A. Reinnervation of skeletal muscle in the mouse 22P

Kovacs, T. & O'Donnell, J. M. Magnesium inhibition of contractility and calcium exchange in frog sartorius muscle 23P

Naftalin, R. J. & Simmons, N. L. A sugar-dependent increase in red cell stability 24P

Allen, J. D. & Arnold, J. M. O. Comparison of the effects of mexiletine, lignocaine and procainamide on canine Purkinje fibres 26P

Kirkpatrick, C. T. Various mechanisms of excitation–contraction coupling in bovine tracheal smooth muscle 28P

Bridges, J. B. & Houston, Janet K. Transplantation of xenogeneic tissue in the syngeneic murine chimaera 29P

Kane, Michael T. Influence of the mucin coat on rabbit blastocysts in culture . 30P

Johnson, K. G. & Smith, C. A. The nature of the thermoregulatory sensitivity to cholinomimetic drugs in the cerebral ventricles of sheep 31P

Gregory, I. C. & Millar, R. A. Low values, *in vitro* and *in vivo*, for the oxygen-carrying capacity of haemoglobin 33P

Baizer, J. S. & Glickstein, M. Role of cerebellum in prism adaptation . . . 34P

Andrews, J. F., Mercer, J. B., Ryan, Elizabeth M. & Székely, M. Metabolic changes in the lamb during the first 36 hr of life related to body weight and to environmental temperature 35P

Bystrzycka, Ewa, Nail, B. S. & Purves, M. J. Central respiratory activity in the mature sheep foetus 36P

Bush, B. M. H. & Cannone, A. J. A positive feed-back reflex to a crustacean muscle receptor 37P

Bito, L. Z. & Davson, H. Carrier-mediated removal of prostaglandins from cerebrospinal fluid 39P

Kady, N. N., Nashat, F. S., Tappin, J. W. & Wilcox, C. S. The effect of acute alterations in plasma sodium concentration on glomerular filtration rate and renal plasma flow in anaesthetized dogs 40P

Lundell, Lars. Changes in urinary histamine following antrectomy and substitution with pentagastrin 42P

Crowe, J. P. & Moore, R. E. Physiological and behavioural responses of aged men to passive heating 43P

Allen, Judith A., Armstrong, Janet E. & Roddie, I. C. Total body sweat responses to thermal, emotional and pharmacological stimuli in a hyperhidrotic subject 45P

Parfrey, P. S. & Sheehan, J. D. Individual facial areas in the human circulatory response to immersion 46P

Hall, W. J. & O'Regan, M. G. The effects of indomethacin and theophylline on the response of frog skin to prostaglandin E_1 . . . . . 48P

Henningsson, S., Kahlson, G. & Rosengren, E. Histamine formation in mouse spleen and liver stimulated by phytohaemagglutinin 49P

Conroy, R. T. W. L. & O'Brien, Moira. Diurnal variation in athletic performance 51P

Mills, J. N., Minors, D. S. & Waterhouse, J. M. Dissociation between different components of circadian rhythms in human subjects deprived of knowledge of time 51P

AUTHOR INDEX

(D) denotes Demonstration (T) Title only

PAGE

ALLEN, JUDITH A., ARMSTRONG, JANET E. and RODDIE, I. C. Total body sweat responses to thermal, emotional and pharmacological stimuli in a hyperhidrotic subject 45P

ALLEN, JUDITH A. and RODDIE, I. C. The effect of antidiuretic hormone on human sweating 403

ALLEN, J. D. and ARNOLD, J. M. O. Comparison of the effects of mexiletine, lignocaine and procainamide on canine Purkinje fibres 26P

ANDREWS, J. F. and MERCER, J. B. A transportable climatic chamber and system for indirect open-circuit metabolic studies 7P

ANDREWS, J. F., MERCER, J. B., RYAN, ELIZABETH M. and SZÉKELY, M. Metabolic changes in the lamb during the first 36 hr of life related to body weight and to environmental temperature 35P

ARMSTRONG, JANET E., ALLEN, JUDITH A. and RODDIE, I. C. Total body sweat responses to thermal, emotional and pharmacological stimuli in a hyperhidrotic subject 45P

ARNOLD, J. M. O. and ALLEN, J. D. Comparison of the effects of mexiletine, lignocaine and procainamide on canine Purkinje fibres 26P

ATKINSON, D. H., SEGUIN, J. J. and WIESENDANGER, M. Organization of corticofugal neurones in somatosensory area II of the cat 663

BAIRD, J. A., HALES, J. R. S. and LANG, W. J. Thermoregulatory responses to the injection of monoamines, acetylcholine and prostaglandins into a lateral cerebral ventricle of the echidna 539

BAIZER, J. S. and GLICKSTEIN, M. Role of cerebellum in prism adaptation . . 34P

BAÑOS, GUADALUPE, DANIEL, P. M. and PRATT, O. E. Saturation of a shared mechanism which transports L-arginine and L-lysine into the brain of the living rat 29

BARASI, S. and ROBERTS, M. H. T. The effects of stimulation of nucleus raphe and iontophoretically applied 5-hydroxytryptamine on spinal motoneurones . 11P

BARLOW, T. E., GREENWELL, J. R., HARPER, A. A. and SCRATCHERD, T. The influence of the splanchnic nerves on the external secretion, blood flow and electrical conductance of the cat pancreas 421

BARRETT, E. J. and HEADON, D. R. The composition of rabbit skeletal muscle relaxing factor 10P

BELL, CHRISTOPHER. Release of endogenous noradrenaline from an isolated elastic artery 473

BITO, L. Z. and DAVSON, H. Carrier-mediated removal of prostaglandins from cerebrospinal fluid 39P

BLAIR, J. A., JOHNSON, I. T. and MATTY, A. J. Absorption of folic acid by everted segments of rat jejunum 653

BLAKEMORE, C. and PAPAIOANNOU, J. Does the vestibular apparatus play a role in the development of the visual system? 373

BLOOM, S. R., EDWARDS, A. V. and VAUGHAN, N. J. A. The role of the autonomic innervation in the control of glucagon release during hypoglycaemia in the calf 611

BRIDGES, J. B. and HOUSTON, JANET K. Transplantation of xenogeneic tissue in the syngeneic murine chimaera 29P

PAGE

BROWN, A. G., GORDON, G. and KAY, R. H. A study of single axons in the cat's medial lemniscus 225

BROWN, J. E. and PINTO, L. H. Ionic mechanism for the photoreceptor potential of the retina of *Bufo marinus* 575

BURGESS, P. R., ENGLISH, KATHLEEN B., HORCH, K. W. and STENSAAS, L. J. Patterning in the regeneration of type I cutaneous receptors 57

BURKHARDT, DWIGHT A. Sensitization and centre-surround antagonism in *Necturus* retina 593

BUSH, B. M. H. and CANNONE, A. J. A positive feed-back reflex to a crustacean muscle receptor 37*P*

BYSTRZYCKA, EWA, NAIL, B. S. and PURVES, M. J. Central respiratory activity in the mature sheep foetus 36*P*

CALVERT, H., GRIMLEY, J. and MCCALLUM, W. D. A simple recorder for large fluid flows (D) 6*P*

CANNON, P. J. and MULVIHILL, T. P. An adaptation of simple mechanical kymograph to flat-bed paper-transport and electronic pen-recording units, modified for extra sensitivity (D) 7*P*

CANNONE, A. J. and BUSH, B. M. H. A positive feed-back reflex to a crustacean muscle receptor 37*P*

CARLYLE, R. F. The occurrence in and actions of amino acids on isolated supra oral sphincter preparations of the sea anemone *Actinia equina* 635

CLOSE, R. I. and LUFF, A. R. Dynamic properties of inferior rectus muscle of the rat 259

CLOSE, R. I. and LUFF, A. R. Contraction speed of the inferior rectus muscle of the rat (T) 21*P*

COHEN, IRA, KITA, HIROSHI and VAN DER KLOOT, WILLIAM. The intervals between miniature end-plate potentials in the frog are unlikely to be independently or exponentially distributed 327

COHEN, IRA, KITA, HIROSHI and VAN DER KLOOT, WILLIAM. The stochastic properties of spontaneous quantal release of transmitter at the frog neuromuscular junction 341

COHEN, IRA, KITA, HIROSHI and VAN DER KLOOT, WILLIAM. Stochastic properties of spontaneous transmitter release at the crayfish neuromuscular junction . 363

COHEN, L. B. and LANDOWNE, D. The temperature dependence of the movement of sodium ions associated with nerve impulses 95

COLE, D. F. and UNGER, W. G. The role of prostaglandins in the ocular response to trauma 18*P*

CONROY, R. T. W. L. and O'BRIEN, MOIRA. Diurnal variation in athletic performance 51*P*

COTTRELL, G. A. and MACON, J. B. Synaptic connexions of two symmetrically placed giant serotonin-containing neurones 435

CROTTY, T. P. The use of Rhodanile Blue and Polariser Red stains in histology (T) (D) 2*P*

CROTTY, T. P. and SHEEHAN, J. D. Examples of super 8 mm sound films for teaching physiology (T) (D) 2*P*

CROWE, J. P. and MOORE, R. E. Physiological and behavioural responses of aged men to passive heating 43*P*

DANIEL, P. M., BAÑOS, GUADALUPE and PRATT, O. E. Saturation of a shared mechanism which transports L-arginine and L-lysine into the brain of the living rat 29

DAVIES, C. T. M., FEW, J., FOSTER, K. G. and SARGEANT, A. J. Plasma catecholamine concentration during exercise involving different muscle groups . . 21*P*

PAGE

DAVSON, H. and BITO, L. Z. Carrier-mediated removal of prostaglandins from cerebrospinal fluid 39*P*

DIAMOND, IVAN, FRANKLIN, GARY M. and MILFAY, DALE. The relationship of choline acetyltransferase activity at the neuromuscular junction to changes in muscle mass and function 247

DOWNIE, J., POYSER, N. L. and WUNDERLICH, M. Levels of prostaglandins in human endometrium during the normal menstrual cycle 465

EARL, JANET and LARGE, W. A. Electrophysiological investigation of GABA-mediated inhibition at the hermit crab neuromuscular junction . . . 113

EDWARDS, A. V., BLOOM, S. R. and VAUGHAN, N. J. A. The role of the autonomic innervation in the control of glucagon release during hypoglycaemia in the calf 611

ENGLISH, KATHLEEN B., BURGESS, P. R., HORCH, K. W. and STENSAAS, L. J. Patterning in the regeneration of type I cutaneous receptors. 57

EVANS, S. E. and INGRAM, D. L. The significance of deep body temperature in regulating the concentration of thyroxine in the plasma of the pig . . 159

FEW, J., DAVIES, C. T. M., FOSTER, K. G. and SARGEANT, A. J. Plasma catecholamine concentration during exercise involving different muscle groups . . 21*P*

FITZGERALD, O., FITZGERALD, P., MCGEENEY, K. F., MURPHY, J. J. and O'MALLEY, E. A working demonstration of isolated pancreatic perfusion (D) . . . 2*P*

FITZGERALD, O., MCGEENEY, K. F. and MURPHY, J. J. Secretory response of the haemo-perfused isolated canine pancreas 20*P*

FITZGERALD, P., FITZGERALD, O., MCGEENEY, K. F., MURPHY, J. J. and O'MALLEY, E. A working demonstration of isolated pancreatic perfusion (D) . . . 2*P*

FOSTER, K. G., DAVIES, C. T. M., FEW, J. and SARGEANT, A. J. Plasma catecholamine concentration during exercise involving different muscle groups . . 21*P*

FRANKLIN, GARY M., DIAMOND, IVAN and MILFAY, DALE. The relationship of choline acetyltransferase activity at the neuromuscular junction to changes in muscle mass and function 247

FRANZ, DONALD N. and PERRY, ROGER S. Mechanisms for differential block among single myelinated and non-myelinated axons by procaine 193

GLICKSTEIN, M. and BAIZER, J. S. Role of cerebellum in prism adaptation . . 34*P*

GLIEMANN, J. and VINTEN, J. Lipogenesis and insulin sensitivity of single fat cells. With an Appendix by AA. VØLUND 499

GINSBORG, B. L., HOUSE, C. R. and SILINSKY, E. M. Conductance changes associated with the secretory potential in the cockroach salivary gland . . 723

GOLDSPINK, G., TABARY, C., TABARY, J. C. and TARDIEU, G. Effect of denervation on the adaptation of sarcomere number and muscle extensibility to the functional length of the muscle 733

GORDON, G., BROWN, A. G. and KAY, R. H. A study of single axons in the cat's medial lemniscus 225

GREENWELL, J. R., BARLOW, T. E., HARPER, A. A. and SCRATCHERD, T. The influence of the splanchnic nerves on the external secretion, blood flow and electrical conductance of the cat pancreas 421

GREGORY, I. C. The oxygen and carbon monoxide capacities of foetal and adult blood 625

GREGORY, I. C. and MILLAR, R. A. Low values, *in vitro* and *in vivo*, for the oxygen-carrying capacity of haemoglobin 33*P*

PAGE

GRIMLEY, J., CALVERT, H. and MCCALLUM, W. D. A simple recorder for large fluid flows (D) 6P

HALES, J. R. S., BAIRD, J. A. and LANG, W. J. Thermoregulatory responses to the injection of monoamines, acetylcholine and prostaglandins into a lateral cerebral ventricle of the echidna 539

HALL, W. J. A cine recording of the glandular response in frog skin to prostaglandin E_1 (T) (D) 2P

HALL, W. J. and O'REGAN, M. G. The effects of indomethacin and theophylline on the response of frog skin to prostaglandin E_1 . . . . . 48P

HANSON, JENNIFER, M., MORLEY, J. and WILLIAMS, T. J. Potentiation of increased vascular permeability by prostaglandins 16P

HARPER, A. A., BARLOW, T. E., GREENWELL, J. R. and SCRATCHERD, T. The influence of the splanchnic nerves on the external secretion, blood flow and electrical conductance of the cat pancreas 421

HARVEY, CAROL A. and MILTON, A. S. The effect of parachlorophenylalanine on the response of the conscious cat to intravenous and intraventricular bacterial pyrogen and to intraventricular prostaglandin E_1 . . . . . 14P

HEADON, D. R. and BARRETT, E. J. The composition of rabbit skeletal muscle relaxing factor 10P

HENDERSON, THERESA C. and LUCKWILL, R. G. Single unit responses to temperature in new-born rabbits (D) 8P

HENNESSY, T., LEHANE, M. and O'LAOIRE, S. The significance of myoelectrical activity in the canine stomach 19P

HENNINGSSON, S., KAHLSON, G. and ROSENGREN, E. Histamine formation in mouse spleen and liver stimulated by phytohaemagglutinin 49P

HIRST, G. D. S., HOLMAN, MOLLIE E. and SPENCE, I. Two types of neurones in the myenteric plexus of ducdenum in the guinea-pig 303

HODSON, STUART. The regulation of corneal hydration by a salt pump requiring the presence of sodium and bicarbonate ions 271

HOLMAN, MOLLIE E., HIRST, G. D. S. and SPENCE, I. Two types of neurones in the myenteric plexus of duodenum in the guinea-pig 303

HORCH, K. W., BURGESS, P. R., ENGLISH, KATHLEEN B. and STENSAAS, L. J. Patterning in the regeneration of type I cutaneous receptors. 57

HOUSE, C. R., GINSBORG, B. L. and SILINSKY, E. M. Conductance changes associated with the secretory potential in the cockroach salivary gland . . 723

HOUSTON, JANET K. and BRIDGES, J. B. Transplantation of xenogeneic tissue in the syngeneic murine chimaera 29P

HUGHES, G. M., RYAN, J. W. and RYAN, UNA. Freeze-fractured lamellate bodies of *Protopterus* lung: a comparative study 15P

INGRAM, D. L. and EVANS, S. E. The significance of deep body temperature in regulating the concentration of thyroxine in the plasma of the pig . 159

ITO, Y. and KURIYAMA, H. Effects of thymol on the electrical and mechanical properties of the guinea-pig taenia coli 143

JOHNSON, I. T., BLAIR, J. A. and MATTY, A. J. Absorption of folic acid by everted segments of rat jejunum 653

JOHNSON, K. G. and SMITH, C. A. The nature of the thermoregulatory sensitivity to cholinomimetic drugs in the cerebral ventricles of sheep 31P

JONES, ROSEMARY and VRBOVÁ, GERTA. Two factors responsible for the development of denervation hypersensitivity 517

PAGE

KADY, N. N., NASHAT, F. S., TAPPIN, J. W. and WILCOX, C. S. The effect of acute alterations in plasma sodium concentration on glomerular filtration rate and renal plasma flow in anaesthetized dogs 40*P*

KAHLSON, G., HENNINGSSON, S. and ROSENGREN, E. Histamine formation in mouse spleen and liver stimulated by phytohaemagglutinin 49*P*

KANE, M. T. *In vitro* culture of pre-implantation rabbit embryos (T) (D) . . 2*P*

KANE, MICHAEL T. Influence of the mucin coat on rabbit blastocysts in culture . 30*P*

KAY, R. H., BROWN, A. G. and GORDON, G. A study of single axons in the cat's medial lemniscus 225

KERNAN, R. P. Cation fluxes in extensor digitorum longus muscles of rat following denervation 12*P*

KIRKPATRICK, C. T. Various mechanisms of excitation–contraction coupling in bovine tracheal smooth muscle 28*P*

KITA, HIROSHI, COHEN, IRA and VAN DER KLOOT, WILLIAM. The intervals between end-plate potentials in the frog are unlikely to be independently or exponentially distributed 327

KITA, HIROSHI, COHEN, IRA and VAN DER KLOOT, WILLIAM. The stochastic properties of spontaneous quantal release of transmitter at the frog neuromuscular junction 341

KITA, HIROSHI, COHEN, IRA and VAN DER KLOOT, WILLIAM. Stochastic properties of spontaneous transmitter release at the crayfish neuromuscular junction . 363

KOVACS, T. and O'DONNELL, J. M. Magnesium inhibition of contractility and calcium exchange in frog sartorius muscle 23*P*

KURIYAMA, H. and ITO, Y. Effects of thymol on the electrical and mechanical properties of the guinea-pig taenia coli 143

LANDOWNE, D. and COHEN, L. B. The temperature dependence of the movement of sodium ions associated with nerve impulses 95

LANG, W. J., BAIRD, J. A. and HALES, J. R. S. Thermoregulatory responses to the injection of monoamines, acetylcholine and prostaglandins into a lateral cerebral ventricle of the echidna 539

LARGE, W. A. and EARL, JANET. Electrophysiological investigation of GABA-mediated inhibition at the hermit crab neuromuscular junction . . . 113

LASANSKY, A. and MARCHIAFAVA, P. L. Light-induced resistance changes in retinal rods and cones of the tiger salamander 171

LASTOWECKA, ANNA and TRIFARÓ, J. M. The effect of sodium and calcium ions on the release of catecholamines from the adrenal medulla: sodium deprivation induces release by eocytosis in the absence of extracellular calcium . . 681

LEHANE, M., HENNESSY, T. and O'LAOIRE, S. The significance of myoelectrical activity in the canine stomach 19*P*

LENNERSTRAND, GUNNAR. Mechanical studies on the retractor bulbi muscle and its motor units in the cat 43

LENNON, J. J. An automatic system for continuous recording of the open-circuit potential and short-circuit current across isolated frog skin (T) (D) . . 1*P*

LINDENMAYER, GEORGE E., SCHWARTZ, ARNOLD and THOMPSON, Jr. HOWARD K. A kinetic description for sodium and potassium effects on $(Na^+ + K^+)$-adenosine triphosphatase: a model for a two-nonequivalent site potassium activation and an analysis of multiequivalent site models for sodium activation . . . 1

LUCKWILL, R. G. and HENDERSON, THERESA C. Single unit responses to temperature in new-born rabbits (D) 8*P*

LUFF, A. R. and CLOSE, R. I. Dynamic properties of inferior rectus muscle of the rat 259

PAGE

LUFF, A. R. and CLOSE, R. I. Contraction speed of the inferior rectus muscle of the rat (T) 21P

LUNDELL, LARS. Changes in urinary histamine following antrectomy and substitution with pentagastrin 42P

MCCALLUM, W. D. A thermodilution method for recording blood flow in human umbilical vein (D) 4P

MCCALLUM, W. D., CALVERT, H. and GRIMLEY, J. A simple recorder for large fluid flows (D) 6P

MCGEENEY, K. F., FITZGERALD, O., FITZGERALD, P., MURPHY, J. J. and O'MALLEY, E. A working demonstration of isolated pancreatic perfusion (D) . . . 2P

MCGEENEY, K. F., FITZGERALD, O. and MURPHY, J. J. Secretory response of the haemoperfused isolated canine pancreas. 20P

MACON, J. B. and COTTRELL, G. A. Synaptic connexions of two symmetrically placed giant serotonin-containing neurones 435

MALINOWSKA, K. W. and NATHANIELSZ, P. W. Plasma aldosterone, cortisol and corticosterone concentrations in the new-born guinea-pig 83

MARCHIAFAVA, P. L. and LASANSKY, A. Light-induced resistance changes in retinal rods and cones of the tiger Salamander 171

MARSHALL, M. W. and WARD, M. R. Anode break excitation in denervated rat skeletal muscle fibres 413

MATTY, A. J., BLAIR, J. A. and JOHNSON, I. T. Absorption of folic acid by everted segments of rat jejunum 653

MERCER, J. B. and ANDREWS, J. F. A transportable climatic chamber and system for indirect open-circuit metabolic studies (D) 7P

MERCER, J. B., ANDREWS, J. F., RYAN, ELIZABETH M. and SZÉKELY, M. Metabolic changes in the lamb during the first 36 hr of life related to body weight and to environmental temperature 35P

MILFAY, DALE, DIAMOND, IVAN and FRANKLIN, GARY M. The relationship of choline acetyltransferase activity at the neuromuscular junction to changes in muscle mass and function 247

MILLAR, R. A. and GREGORY, I. C. Low values, *in vitro* and *in vivo*, for the oxygen carrying capacity of haemoglobin 33P

MILLS, J. N., MINORS, D. S. and WATERHOUSE, J. M. Dissociation between different components of circadian rhythms in human subjects deprived of knowledge of time 51P

MILTON, A. S. and HARVEY, CAROL A. The effect of parachlorophenylalanine on the response of the conscious cat to intravenous and intraventricular bacterial pyrogen and to intraventricular prostaglandin E_1 . . . . . 14P

MINORS, D. S., MILLS, J. N. and WATERHOUSE, J. M. Dissociation between different components of circadian rhythms in human subjects deprived of knowledge of time 51P

MITCHELL, DONALD E. and WARE, COLIN. Interocular transfer of a visual after-effect in normal and stereoblind humans 707

MOORE, R. E. and CROWE, J. P. Physiological and behavioural responses of aged men to passive heating 43P

MORLEY, J., HANSON, JENNIFER M. and WILLIAMS, T. J. Potentiation of increased vascular permeability by prostaglandins 16P

MULVIHILL, T. P. and CANNON, P. J. An adaptation of simple mechanical kymograph to flat-bed paper-transport and electronic pen-recording units, modified for extra sensitivity (D) 7P

PAGE

MURPHY, J. J., FITZGERALD, O., FITZGERALD, P., McGEENEY, K. F. and O'MALLEY, E. A working demonstration of isolated pancreatic perfusion (D) . . . 2P

MURPHY, J. J., FITZGERALD, O. and McGEENEY, K. F. Secretory response of the haemoperfused isolated canine pancreas 20P

NAFTALIN, R. J. and SIMMONS, N. L. A sugar-dependent increase in red cell stability 24P

NAIL, B. S., BYSTRZYCKA, EWA and PURVES, M. J. Central respiratory activity in the mature sheep foetus 36P

NASHAT, F. S., KADY, N. N., TAPPIN, J. W. and WILCOX, C. S. The effect of acute alterations in plasma sodium concentration on glomerular filtration rate and renal plasma flow in anaesthetized dogs 40P

NATHANIELSZ, P. W. and MALINOWSKA, K. W. Plasma aldosterone, cortisol and corticosterone in the new-born guinea-pig 83

O'BRIEN, MOIRA and CONROY, R. T. W. L. Diurnal variation in athletic performance 51P

O'CONNOR, P. C. and SLATER, P. An isolated innervated vascular preparation (D) 3P

O'DONNELL, J. M. and KOVAČS, T. Magnesium inhibition of contractility and calcium exchange in frog sartorius muscle 23P

O'LAOIRE, S., HENNESSY, T. and LEHANE, M. The significance of myoelectrical activity in the canine stomach 19P

O'MALLEY, E., FITZGERALD, O., FITZGERALD, P., McGEENEY, K. F. and MURPHY, J. J. A working demonstration of isolated pancreatic perfusion (D) . . 2P

O'NEILL, M., SHORTEN, E. and WHELTON, M. J. Upper gastrointestinal endoscopy: the fibreoptic revolution (T) (D) 3P

O'REGAN, M. G. Measurement of drug effects on the electrical excitability of frog skin (D) 1P

O'REGAN, M. G. and HALL, W. J. The effects of indomethacin and theophylline on the response of frog skin to prostaglandin E_1 . . . . . 48P

PAPAIOANNOU, J. and BLAKEMORE, C. Does the vestibular apparatus play a role in the development of the visual system? 373

PARFREY, P. S. and SHEEHAN, J. D. Individual facial areas in the human circulatory response to immersion 46P

PERRY, ROGER S. and FRANZ, DONALD N. Mechanisms for differential block among single myelinated and non-myelinated axons by procaine 193

PINTO, L. H. and BROWN, J. E. Ionic mechanism for the photoreceptor potential of the retina of *Bufo marinus* 575

PLATTS, R. G. S. and WILSON, P. Chronically implanted pulmonary arterial cuffs to separately measure oxygen uptake of either lung in the exercising dog (T) (D) 8P

POYSER, N. L., DOWNIE, J. and WUNDERLICH, M. Levels of prostaglandins in human endometrium during the normal menstrual cycle 465

PRATT, O. E., BAÑOS, GUADALUPE and DANIEL, P. M. Saturation of a shared mechanism which transports L-arginine and L-lysine into the brain of the living rat 29

PURVES, M. J., BYSTRZYCKA, EWA and NAIL, B. S. Central respiratory activity in the mature sheep foetus 36P

REES, D. The spontaneous release of transmitter from insect nerve terminals as predicted by the negative binomial theorem 129

ROBERTS, M. H. T. and BARASI, S. The effects of stimulation of nucleus raphe and iontophoretically applied 5-hydroxytryptamine on spinal motoneurones . 11P

PAGE

RODDIE, I. C. and ALLEN, JUDITH A. The effect of antidiuretic hormone on human sweating 403

RODDIE, I. C., ALLEN, JUDITH A. and ARMSTRONG, JANET E. Total body sweat responses to thermal, emotional and pharmacological stimuli in a hyperhidrotic subject 45P

ROSENGREN, E., HENNINGSSON, S. and KAHLSON, G. Histamine formation in mouse spleen and liver stimulated by phytohaemagglutinin 49P

RYAN, ELIZABETH M., ANDREWS, J. F., MERCER, J. B. and SZÉKELY, M. Metabolic changes in the lamb during the first 36 hr of life related to body weight and to environmental temperature 35P

RYAN, J. W., HUGHES, G. M. and RYAN, UNA. Freeze-fractured lamellate bodies of *Protopterus* lung: a comparative study 15P

RYAN, UNA, HUGHES, G. M. and RYAN, J. W. Freeze-fractured lamellate bodies of *Protopterus* lung: a comparative study 15P

SARGEANT, A. J., DAVIES, C. T. M., FEW, J. and FOSTER, K. G. Plasma catecholamine concentration during exercise involving different muscle groups . . 21P

SCHWARTZ, ARNOLD, LINDENMAYER, GEORGE E. and THOMPSON, Jr. HOWARD K. A kinetic description for sodium and potassium effects on $(Na^+ + K^+)$-adenosine triphosphatase: a model for a two nonequivalent site potassium activation and an analysis of multiequivalent site models for sodium activation . . 1

SCHWARTZ, E. A. Responses of bipolar cells in the retina of the turtle . . . 211

SCRATCHERD, T., BARLOW, T. E., GREENWELL, J. R. and HARPER, A A. The influence of the splanchnic nerves on the external secretion, blood flow and electrical conductance of the cat pancreas 421

SEGUIN, J. J., ATKINSON, D. H. and WIESENDANGER, M. Organization of corticofugal neurones in somatosensory area II of the cat. 663

SHEEHAN, J. D. and CROTTY, T. P. Examples of super 8 mm sound films for teaching physiology (T) (D) 2P

SHEEHAN, J. D. and PARFREY, P. S. Individual facial areas in the human circulatory response to immersion 46P

SHORTEN, E., O'NEILL, M. and WHELTON, M. J. Upper gastrointestinal endoscopy: the fibreoptic revolution (D) 3P

SILINSKY, E. M., GINSBORG, B. L. and HOUSE, C. R. Conductance changes associated with the secretory potential in the cockroach salivary gland . . 723

SIMMONS, N. L. and NAFTALIN, R. J. A sugar-dependent increase in red cell stability 24P

SIRS, JOHN A. The kinetics of the reaction of carbon monoxide with fully oxygenated haemoglobin in solution and erythrocytes 387

SLATER, P. and O'CONNOR, P. C. An isolated innervated vascular preparation (D) 3P

SMITH, C. A. and JOHNSON, K. G. The nature of the thermoregulatory sensitivity to cholinomimetic drugs in the cerebral ventricles of sheep 31P

SPENCE, I., HIRST, G. D. S. and HOLMAN, MOLLIE E. Two types of neurones in the myenteric plexus of duodenum in the guinea-pig 303

STENSAAS, L. J., BURGESS, P. R., ENGLISH, KATHLEEN B. and HORCH, K. W. Patterning in the regeneration of type I cutaneous receptors. 57

SZÉKELY, M., ANDREWS, J. F., MERCER, J. B. and RYAN, ELIZABETH M. Metabolic changes in the lamb during the first 36 hr of life related to body weight and to environmental temperature 35P

TABARY, C., GOLDSPINK, G., TABARY, J. C. and TARDIEU, G. Effect of denervation on the adaptation of sarcomere number and muscle extensibility to the functional length of the muscle 733

PAGE

TABARY, J. C., GOLDSPINK, G., TABARY, C. and TARDIEU, G. Effect of denervation on the adaptation of sarcomere number and muscle extensibility to the functional length of the muscle 733

TAPPIN, J. W., KADY, N. N., NASHAT, F. S. and WILCOX, C. S. The effect of acute alterations in plasma sodium concentration on glomerular filtration rate and renal plasma flow in anaesthetized dogs 40P

TARDIEU, G., GOLDSPINK, G., TABARY, C. and TABARY, J. C. Effect of denervation on the adaptation of sarcomere number and muscle extensibility to the functional length of the muscle 733

THOMPSON, Jr., HOWARD K., LINDENMAYER, GEORGE E. and SCHWARTZ, ARNOLD. A kinetic description for sodium and potassium effects on $(Na^+ + K^+)$-adenosine triphosphatase: a model for a two-nonequivalent site potassium activation and an analysis of multiequivalent site models for sodium activation 1

TONGE, D. A. Reinnervation of skeletal muscle in the mouse 22P

TRIFARÓ, J. M. and LASTOWECKA, ANNA. The effect of sodium and calcium ions on the release of catecholamines from the adrenal medulla: sodium deprivation induces release by exocytosis in the absence of extracellular calcium . . 681

UNGER, W. G. and COLE, D. F. The role of prostaglandins in the ocular response to trauma 18P

VAN DER KLOOT, WILLIAM, COHEN, IRA and KITA, HIROSHI. The intervals between end-plate potentials in the frog are unlikely to be independently or exponentially distributed 327

VAN DER KLOOT, WILLIAM, COHEN, IRA and KITA, HIROSHI. The stochastic properties of spontaneous quantal release of transmitter at the frog neuromuscular junction 341

VAN DER KLOOT, WILLIAM, COHEN, IRA and KITA, HIROSHI. Stochastic properties of spontaneous transmitter release at the crayfish neuromuscular junction . 363

VAUGHAN, N. J. A., BLOOM, S. R. and EDWARDS, A. V. The role of the autonomic innervation in the control of glucagon release during hypoglycaemia in the calf 611

VINTEN, J. and GLIEMANN, J. Lipogenesis and insulin sensitivity of single fat cells. With an Appendix by AA. VØLUND 499

VOGT, MARTHE. The effect of lowering the 5-hydroxytryptamine content of the rat spinal cord on analgesia produced by morphine 483

VØLUND, AA. Appendix to lipogenesis and insulin sensitivity of single fat cells, by J. GLIEMANN and J. VINTEN 499

VRBOVÁ, GERTA and JONES, ROSEMARY. Two factors responsible for the development of denervation hypersensitivity 517

WARE, COLIN and MITCHELL, DONALD E. Interocular transfer of a visual after-effect in normal and stereoblind humans 707

WARD, M. R. and MARSHALL, M. W. Anode break excitation in denervated rat skeletal muscle fibres 413

WATERHOUSE, J. M., MILLS, J. N. and MINORS, D. S. Dissociation between different components of circadian rhythms in human subjects deprived of knowledge of time 51P

WHELTON, M. J., O NEILL, M. and SHORTEN, E. Upper gastrointestinal endoscopy: the fibreoptic revolution (D) 3P

WILCOX, C. S., KADY, N. N., NASHAT, F. S. and TAPPIN, J. W. The effect of acute alterations in plasma sodium concentration on glomerular filtration rate and renal plasma flow in anaesthetized dogs 40P

WILLIAMS, T. J., HANSON, JENNIFER M. and MORLEY, J. Potentiation of increased vascular permeability by prostaglandins 16P

PAGE

WILSON, P. and PLATTS, R. G. S. Chronically implanted pulmonary arterial cuffs to separately measu re oxygen uptake of either lung in the exercising dog (D) (T) 8*P*

WISENDANGER, M., ATKINSON, D. H. and SEGUIN, J. J. Organization of corticofugal neurones in somatosensory area II of the cat 663

WUNDERLICH, M., DOWNIE, J. and POYSER, N. L. Levels of prostaglandins in human endometrium during the normal menstrual cycle 465

ZEKI, S. M. Functional organization of a visual area in the posterior bank of the superior temporal sulcus of the rhesus monkey 549

SUBJECT INDEX

Action potential, the temperature dependence of the movement of sodium ions associated with nerve impulses (squid), 95

Adrenal cortex, plasma aldosterone, cortisol and corticosterone in the new-born guinea-pig, 83

Adrenal medulla, the effect of sodium and calcium ions on the release of catecholamines from the – sodium deprivation induces release by exocytosis in the absence of extracellular calcium (bovine), 681

Aldosterone, plasma –, cortisol and corticosterone in the new-born guinea-pig, 83

Amino acids, the occurrence in and actions of – on isolated supra oral sphincter preparations of the sea anemone *Actinia equina*, 635

Antidiuretic hormone, the effect of – on human sweating, 403

Arginine, saturation of a shared mechanism which transports L-arginine and L-lysine into the brain of the living rat, 29

Artery, release of endogenous noradrenaline from an isolated elastic –, 473

Athletic performance, diurnal variation in –, 51*P*

ATPase, a kinetic description for sodium and potassium effects on $(Na^+ + K^+)$-adenosine triphosphatase: a model for a two-nonequivalent site potassium activation and an analysis of multi-equivalent site models for sodium activation, 1

Axonal conduction, mechanisms for differential block among single myelinated and non-myelinated axons by procaine (cat), 193

Bipolar cells, responses of – in the retina of the turtle, 211

Blastocysts, influence of the mucin coat on rabbit – in culture, 30*P*

Blood, the oxygen and carbon monoxide capacities of foetal and adult –, 625

Blood flow, a thermodilution method for recording blood flow in human umbilical vein, 4*P*

Brain, saturation of a shared mechanism which transports L-arginine and L-lysine into the – of the living rat, 29

Calcium, the effect of sodium and – ions on the release of catecholamines from the adrenal medulla: sodium deprivation induces release by exocytosis in the absence of extracellular –, (bovine), 681

Carbon monoxide, the kinetics of the reaction of – with fully oxygenated haemoglobin in solution and erythrocytes (man, sheep), 387

Carbon monoxide capacity, the oxygen and carbon monoxide capacities of foetal and adult blood, 625

Catecholamine, plasma – concentration during exercise involving different muscle groups (man), 21*P*

Cerebellum, role of cerebellum in prism adaptation, 34*P*

Cerebrospinal fluid, carrier-mediated removal of prostaglandins from – (rabbit), 39*P*

Chimaera, transplantation of xenogeneic tissue in the syngeneic murine –, 29*P*

Choline acetyltransferase, the relationship of – activity at the neuromuscular junction to changes in muscle mass and function, 247

Circadian rhythms, dissociation between different components of – in human subjects deprived of knowledge of time, 51*P*

Climatic chamber, a transportable climatic chamber and system for indirect open-circuit metabolic studies, 7*P*

Cockroach, conductance changes associated with the secretory potential in the – salivary gland, 723

Cornea, the regulation of corneal hydration by a salt pump requiring the presence of sodium and bicarbonate ions (rabbit), 271

Denervated muscles, cation fluxes in extensor digitorum longus muscles of rat following denervation, 12*P*

Denervation, anode break excitation in denervated rat skeletal muscle fibres, 413

effect of – on the adaptation of sarcomere number and muscle extensibility to the functional length of the muscle (cat), 733

two factors responsible for the development of – hypersensitivity (rat), 517

Development, does the vestibular apparatus play a role in the development of the visual system? (kitten), 373

Duodenum, two types of neurones in the myenteric plexus of – in the guinea-pig, 303

Echidna, thermoregulatory responses to the injection of monoamines, acetylcholine and prostaglandins into a lateral cerebral ventricle of the –, 539

Endometrium, levels of prostaglandins in human – during the normal menstrual cycle, 465

Endothelium, the regulation of corneal hydration by a salt pump requiring the presence of sodium and bicarbonate ions (rabbit), 271

Erythrocytes, the kinetics of the reaction of carbon monoxide with fully oxygenated haemoglobin in solution and – (man, sheep), 387

Exercise, plasma catecholamine concentration during – involving different muscle groups (man), 21*P*

Exocytosis, the effect of sodium and calcium ions on the release of catecholamines from the adrenal medulla: sodium deprivation induces release by – in the absence of extracellular calcium (bovine), 681

Eye, the role of prostaglandins in the ocular response to trauma (rabbit), 18*P*

Eye muscle, mechanical studies on the retractor bulbi muscle and its motor units in the cat, 43

Fat cells, lipogenesis and insulin sensitivity of single – (rat), 499

Flow recorder, a simple recorder for large fluid flows, 6*P*

Foetus, central respiratory activity in the mature sheep –, 36*P*

Folic acid, absorption of – by everted segments of rat jejunum, 653

Frog skin, the effects of indomethacin and theophylline on the response of – to prostaglandin E_1, 48*P*

GABA, electrophysiological investigation of GABA-mediated inhibition at the hermit crab neuromuscular junction, 113

Glomerular filtration rate, the effect of acute alterations in plasma sodium concentration on – and renal plasma flow in anaesthetized dogs, 40*P*

Glucagon, the role of the autonomic innervation in the control of – release during hypoglycaemia in the calf, 611

Haemoglobin, low values, *in vitro* and *in vivo*, for the oxygen carrying capacity of – (man), 33*P*

the kinetics of the reaction of carbon monoxide with fully oxygenated – in solution and erythrocytes (man, sheep), 387

Heart rate, individual facial areas in the human circulatory response to immersion, 46*P*

Histamine excretion, changes in urinary histamine following antrectomy and substitution with pentagastrin, 42*P*

Histamine formation, – in mouse spleen and liver stimulated by phytohaemagglutinin, 49*P*

5-hydroxytryptamine, the effect of lowering the – content of the rat spinal cord on analgesia produced by morphine, 483

Hypoglycaemia, the role of the autonomic innervation in the control of glucagon release during – in the calf, 611

Immersion, individual facial areas in the human circulatory response to immersion, 46*P*

Insulin, lipogenesis and insulin sensitivity of single fat cells (rat), 499

Interocular transfer, – of a visual aftereffect in normal and stereoblind humans, 707

Intestine, absorption of folic acid by everted segments of rat jejunum, 653

Kidney, the effect of acute alterations in plasma sodium concentration on glomerular filtration rate and renal plasma flow in anaesthetized dogs, 40*P*

Kymograph, an adaptation of simple mechanical – to flat-bed paper-transport and electronic pen-recording units, modified for extra sensitivity, 7*P*

Labyrinthectomy, does the vestibular apparatus play a role in the development of the visual system? (kitten), 373

Lipogenesis, – and insulin sensitivity of single fat cells (rat), 499

Lung, freeze-fractured lamellate bodies of *Protopterus* –: a comparative study, 15*P*

Lysine, saturation of a shared mechanism which transports L-arginine and L-lysine into the brain of the living rat, 29

Medial lemniscus, a study of single axons in the cat's medial lemniscus, 225
Menstrual cycle, levels of prostaglandins in human endometrium during the normal – , 465
Morphine analgesia, the effect of lowering the 5-hydroxytryptamine content of the rat spinal cord on analgesia produced by morphine, 483
Motoneurones, the effects of stimulation of nucleus raphe and iontophoretically applied 5-hydroxytryptamine on spinal – , (rat), 11*P*
Motor units, mechanical studies on the retractor bulbi muscle and its – in the cat, 43
Muscle dynamics, dynamic properties of inferior rectus muscle of the rat, 259
Muscle mass, the relationship of choline acetyltransferase activity at the neuromuscular junction to changes in – and function, 247
Muscle receptor, a positive feed-back reflex to a crustacean – , 37*P*
Myenteric plexus, two types of neurones in the – of duodenum in the guinea-pig, 303

Neuromuscular junction, electrophysiological investigation of GABA-mediated inhibition at the hermit crab – , 113
stochastic properties of spontaneous transmitter release at the crayfish – , 363
the intervals between miniature end-plate potentials in the frog are unlikely to be independently or exponentially distributed, 327
the relationship of choline acetyltransferase activity at the – to changes in muscle mass and function, 247
the spontaneous release of transmitter from insect nerve terminals as predicted by the negative binomial theorem, 129
the stochastic properties of spontaneous quantal release of transmitter at the frog – , 341
Neurones, synaptic connexions of two symmetrically placed giant serotonin-containing – (snail), 435
Nerve block, mechanisms for differential block among single myelinated and non-myelinated axons by procaine (cat), 193
Nerve regeneration, patterning in the regeneration of type I cutaneous receptors (cat), 57
New-born animal, metabolic changes in the lamb during the first 36 hr of life related to body weight and to environmental temperature, 35*P*
plasma aldosterone, cortisol and corticosterone in the new-born guinea-pig, 83
single unit responses to temperature in new-born rabbits, 8*P*
Noradrenaline, release of endogenous – from an isolated elastic artery, 473
Nucleus raphe, the effects of stimulation of – and iontophoretically applied 5-hydroxytryptamine on spinal motoneurones (rat), 11*P*

Oxygen capacity, low values, *in vitro* and *in vivo*, for the oxygen carrying capacity of haemoglobin (man), 33*P*
the oxygen and carbon monoxide capacities of foetal and adult blood, 625

Pancreas, a working demonstration of isolated pancreatic perfusion, 2*P*
secretory response of the haemoperfused isolated canine – , 20*P*
the influence of the splanchnic nerves on the external secretion, blood flow and electrical conductance of the cat – , 421
Parasympathetic, the role of the autonomic innervation in the control of glucagon release during hypoglycaemia in the calf, 611
Photoreceptor, ionic mechanism for the – potential of the retina of *Bufo marinus*, 575
Phytohaemagglutinin, histamine formation in mouse spleen and liver stimulated by – , 49*P*
Prism adaptation, role of cerebellum in – , 34*P*
Procaine, mechanisms for differential block among single myelinated and non-myelinated axons by – (cat), 193
Prostaglandin E_1, the effect of parachlorophenylalanine on the response of the conscious cat to intravenous and intraventricular bacterial pyrogen and to intraventricular – , 14*P*
the effects of indomethacin and theophylline on the response of frog skin to – , 48*P*
Prostaglandins, carrier-mediated removal of – from cerebrospinal fluid (rabbit), 39*P*
levels of – in human endometrium during the normal menstrual cycle, 465
potentiation of increased vascular permeability by – (guinea-pig), 16*P*
the role of – in the ocular response to trauma (rabbit), 18*P*

Purkinje fibres, comparison of the effects of mexiletine, lignocaine and procainamide on canine –, 26*P*

Pyramidal tract, organization of corticofugal neurones in somatosensory area II of the cat, 663

Pyrogen, the effect of parachlorophenylalanine on the response of the conscious cat to intravenous and intraventricular bacterial – and to intraventricular prostaglandin E_1, 14*P*

Red cell, a sugar-dependent increase in – stability, 24*P*

Relaxing factor, the composition of rabbit skeletal muscle –, 10*P*

Respiration, central respiratory activity in the mature sheep foetus, 36*P*

Retina, ionic mechanism for the photoreceptor potential of the – of *Bufo marinus*, 575

Light-induced resistance changes in retinal rods and cones of the tiger salamander, 171

responses of bipolar cells in the – of the turtle, 211

sensitization and centre-surround antagonism in *Necturus* retina, 593

Salamander, light-induced resistance changes in retinal rods and cones of the tiger salamander, 171

Salivary gland, conductance changes associated with the secretory potential in the cockroach salivary gland, 723

Sarcomere, effect of denervation on the adaptation of – number and muscle extensibility to the functional length of the muscle (cat), 733

Sea anemone, the occurrence in and actions of amino acids on isolated supra oral sphincter preparations of the – *Actinia equina*, 635

Serotonin, synaptic connexions of two symmetrically placed giant – containing neurones (snail), 435

Skeletal muscle, anode break excitation in denervated – fibres, 413

effect of denervation on the adaptation of sarcomere number and muscle extensibility to the functional length of the muscle (cat), 733

magnesium inhibition of contractility and calcium exchange in frog sartorius muscle, 23*P*

reinnervation of – in the mouse, 22*P*

the composition of rabbit – relaxing factor, 10*P*

two factors responsible for the development of denervation hypersensitivity (rat), 517

Skin potential, measurement of drug effects on the electrical excitability of frog skin, 1*P*

Smooth muscle, effects of thymol on the electrical and mechanical properties of the guinea-pig taenia coli, 143

various mechanisms of excitation-contraction coupling in bovine tracheal –, 28*P*

Sodium pump, a kinetic description for sodium and potassium effects on $(Na^+ + K^+)$-adenosine triphosphatase: a model for a two-nonequivalent site potassium activation and an analysis of multiequivalent site models for sodium activation, 1

the regulation of corneal hydration by a salt pump requiring the presence of sodium and bicarbonate ions (rabbit), 271

Somatosensory areas, organization of corticofugal neurones in somatosensory area II of the cat, 663

Spinal cord, the effect of lowering the 5-hydroxytryptamine content of the rat – on analgesia produced by morphine, 483

Splanchnic nerves, the influence of the – on the external secretion, blood flow and electrical conductance of the cat pancreas, 421

Stereoblind observers, interocular transfer of a visual after-effect in normal and stereoblind humans, 707

Stomach, the significance of myoelectrical activity in the canine –, 19*P*

Sugars, a sugar-dependent increase in red cell stability, 24*P*

Sweating, the effect of antidiuretic hormone on human –, 403

total body sweat responses to thermal, emotional and pharmacological stimuli in a hyperhidrotic subject, 45*P*

Temperature, the significance of deep body temperature in regulating the concentration of thyroxine in the plasma of the pig, 159

the – dependence of the movement of sodium ions associated with nerve impulses (squid), 95

Temperature regulation, physiological and behavioural responses of aged men to passive heating, 43*P*

Temperature regulation, the nature of the thermoregulatory sensitivity to cholinomimetic drugs in the cerebral ventricles of sheep, 31*P*

thermoregulatory responses to the injection of monoamines acetylcholine and prostaglandins into a lateral cerebral ventricle of the echidna, 539

Temperature sensitivity, single unit responses to temperature in new-born rabbits, 8*P*

Thymol, effects of – on the electrical and mechanical properties of the guinea-pig taenia coli, 143

Thyroxine, the significance of deep body temperature in regulating the concentration of – in the plasma of the pig, 159

Transmitter release, stochastic properties of spontaneous – at the crayfish neuromuscular junction, 363

the intervals between miniature end-plate potentials in the frog are unlikely to be independently or exponentially distributed, 327

the spontaneous release of transmitter from insect nerve terminals as predicted by the negative binomial theorem, 129

the stochastic properties of spontaneous quantal release of transmitter at the frog neuromuscular junction, 341

Type I receptors, patterning in the regeneration of – cutaneous receptors (cat), 57

Umbilical vein, a thermodilution method for recording blood flow in human –, 4*P*

Vascular permeability, potentiation of increased – by prostaglandins (guinea-pig), 16*P*

Vasomotor transmitter, release of endogenous noradrenaline from an isolated elastic artery, 473

Vein, an isolated innervated vascular preparation, 3*P*

Ventricles, thermoregulatory responses to the injection of monoamines, acetylcholine and prostaglandins into a lateral cerebral – of the echidna, 539

Vision, Interocular transfer of a visual after-effect in normal and stereoblind humans, 707

Visual area, functional organization of a – in the posterior bank of the superior temporal sulcus of the rhesus monkey, 549

Visual cortex, does the vestibular apparatus play a role in the development of the visual system? (kitten), 373

THE JOURNAL OF PHYSIOLOGY

EDITED FOR

THE PHYSIOLOGICAL SOCIETY

BY

H. B. BARLOW J. A. V. BATES J. BLIGH
J. R. BRONK P. C. CALDWELL J. DIAMOND
R. H. T. EDWARDS D. K. HILL L. L. IVERSEN
J. J. B. JACK D. H. JENKINSON B. R. JEWELL
N. JOELS J. F. LAMB J. LEE A. R. MARTIN
J. N. MILLS C. RASHBASS T. A. SEARS
P. D. WALL J. G. WIDDICOMBE G. WISEMAN
P. F. BAKER (*Secretary*) R. H. ADRIAN (*Chairman*)

Volume 237

1974

CAMBRIDGE UNIVERSITY PRESS

PUBLISHED BY
THE SYNDICS OF THE CAMBRIDGE UNIVERSITY PRESS

Bentley House, 200 Euston Road, London, NW1 2DB
American Branch: 32 East 57th Street, New York, N.Y. 10022

© The Physiological Society 1974

Printed in Great Britain at the University Printing House, Cambridge

CONTENTS OF VOLUME 237

No. 1 *February* 1974

PAGE

An analysis of the role of calcium in facilitation at the frog neuromuscular junction. By S. G. YOUNKIN 1

Characteristics, specificity, and efferent control of frog cutaneous cold receptors. By DAVID C. SPRAY 15

Capillary permeability to protein as a factor in the control of plasma volume. By E. P. WRAIGHT 39

The effect of visual experience on the development of stimulus specificity by kitten cortical neurones. By J. D. PETTIGREW . . 49

The properties of motor units in a fast and a slow twitch muscle during post-natal development in the kitten. By J. BAGUST, D. M. LEWIS and R. A. WESTERMAN 75

Isometric contractions of motor units in self reinnervated fast and slow twitch muscles of the cat. By J. BAGUST and D. M. LEWIS 91

Dynamic properties of denervated fast and slow twitch muscle of the cat. By C. J. C. KEAN, D. M. LEWIS and J. D. MCGARRICK . 103

Post-tetanic effects in motor units of fast and slow twitch muscle of the cat. By J. BAGUST, D. M. LEWIS and J. C. LUCK . . . 115

Potassium: potassium exchange catalysed by the sodium pump in human red cells. By T. J. B. SIMONS 123

The effect of contractile activity on fibrillation and extrajunctional acetylcholine-sensitivity in rat muscle maintained in organ culture. By D. PURVES and B. SAKMANN 157

Actions of glucose and potassium chloride on osmoreceptors slowing gastric emptying. By G. R. BARKER, G. MCL. COCHRANE, G. A. CORBETT, J. N. HUNT and SUSAN KEMP ROBERTS . . 183

Effect of glycylglycine and glycine on jejunal absorption rate of L-histidine in man *in vivo*. By G. C. COOK 187

Reversal of the physiological effects of monocular deprivation in kittens: further evidence for a sensitive period. By COLIN BLAKEMORE and RICHARD C. VAN SLUYTERS 195

PAGE

The formation of synapses in mammalian sympathetic ganglia reinnervated with preganglionic or somatic nerves. By ELSPETH M. MCLACHLAN 217

No. 2 *March* 1974

Tension responses to quick length changes of glycerinated skeletal muscle fibres from the frog and tortoise. By P. HEINL, H. J. KUHN and J. C. RÜEGG 243

The sensitivity of *Helix aspersa* neurones to injected calcium ions. By R. W. MEECH 259

Capacitance effects and blood reservoir function in the splanchnic vascular bed during non-hypotensive haemorrhage and blood volume expansion in anaesthetized cats. By C. V. GREENWAY and G. E. LISTER 279

A study of the contractures induced in frog atrial trabeculae by a reduction of the bathing sodium concentration. By R. A. CHAPMAN 295

The role of the carotid body chemoreceptors and carotid sinus baroreceptors in the control of cerebral blood vessels. By J. PONTE and M. J. PURVES 315

The density and photosensitivity of human rhodopsin in the living retina. By M. ALPERN and E. N. PUGH Jr. 341

The projection of the posterior knee joint nerve to the cerebellar cortex. By PAOLA BELCARI, G. CARLI and P. STRATA 371

Fluorescent staining of acetylcholine receptors in vertebrate skeletal muscle. By M. J. ANDERSON and M. W. COHEN . . 385

The velocity of lymph flow in the canine thoracic duct. By N. L. BROWSE, D. R. RUTT, D. SIZELAND and ALEXIS TAYLOR . . 401

Effects of vagotomy, atropine, hexamethonium and adrenaline on the destination in the stomach of liquids sucked by milk-fed lambs and calves. By J. C. NEWHOOK and D. A. TITCHEN . . . 415

Electrically induced release of acetylcholine from denervated Schwann cells. By M. J. DENNIS and R. MILEDI 431

A note on the interaction of spontaneous and evoked release at the frog neuromuscular junction. By ELLEN F. BARRETT, J. N. BARRETT, A. R. MARTIN and R. RAHAMIMOFF 453

PAGE

Analysis of the role of cyclic adenosine 3′,5′-monophosphate in catecholamine release. By SIRET D. JAANUS and R. P. RUBIN . 465

No. 3 *March* 1974

The compliance of contracting skeletal muscle. By B. H. BRESSLER and N. F. CLINCH 477

Whole kidney and cortical blood flow in rats on high and low sodium diets. By P. F. MERCER and E. A. ZUSKO 495

Negative feed-back regulation of noradrenaline release by nerve stimulation in the perfused cat's spleen: differences in potency of phenoxybenzamine in blocking the pre- and post-synaptic adrenergic receptors. By MARGARITA L. DUBOCOVICH and S. Z. LANGER . 505

The effects of pentobarbitone anaesthesia on the volume and composition of the extracellular fluid of dogs. By D. S. RAMPTON and D. J. RAMSAY 521

The effects of the production of sodium depletion by peritoneal dialysis with 5% glucose on the volume and composition of the extracellular fluid of dogs. By D. S. RAMPTON and D. J. RAMSAY . 533

The sodium-transporting compartment of the epithelium of frog skin. By M. CEREIJIDO, C. A. RABITO, E. RODRÍGUEZ BOULAN and CATALINA A. ROTUNNO 555

Membrane capacity measurements on frog skeletal muscle in media of low ion content. By R. H. ADRIAN and W. ALMERS. With an Appendix by R. H. ADRIAN, W. ALMERS and W. K. CHANDLER 573

The hippocampal control of neuronal discharges in the septum of the rat. By H. MCLENNAN and J. J. MILLER 607

γ-Aminobutyric acid and inhibition in the septal nuclei of the rat. By H. MCLENNAN and J. J. MILLER 625

Concomitant changes in formaldehyde-induced fluorescence of dopamine interneurones and in slow inhibitory post-synaptic potentials of the rabbit superior cervical ganglion, induced by stimulation of the preganglionic nerve or by a muscarinic agent. By B. LIBET and CH. OWMAN 635

Left atrial receptors and the antidiuretic hormone. By C. T. KAPPAGODA, R. J. LINDEN, H. M. SNOW and ELAINE M. WHITAKER 663

The response to distension of the pulmonary vein–left atrial junctions in dogs with spinal section. By SALLY M. BURKHART and J. R. LEDSOME 685

PROCEEDINGS OF THE PHYSIOLOGICAL SOCIETY

9–10 *November* 1973

DEMONSTRATIONS

PAGE

Spencer, Jan. Gastric secretion in the isolated stomach of the guinea-pig . . 1*P*

Garrett, J. R. & Parsons, Patricia A. Movement of horseradish peroxidase in submandibular glands of rabbits after arterial injection 3*P*

Pratt, O. E. An electronically controlled syringe drive for giving an injection at a variable rate according to a preset programme 5*P*

Ettlinger, G., Hester, N. & Ridley, R. M. Recording from single-cells in infero-temporal cortex of the monkey during discrimination performance . . 6*P*

Daniel, P. M., Donaldson, Jane & Pratt, O. E. The rapid achievement and maintenance of a steady level of an injected substance in the blood plasma . . 8*P*

Duchen, L. W. A dominant hereditary sensory disorder in the mouse with deficiency of muscle spindles: the mutant *Sprawling* 10*P*

Daniel, P. M., Love, E. R., Moorhouse, S. R., Pratt, O. E. & Wilson, Penelope. A method for rapidly washing the blood out of an organ or tissue of the anaesthetized living animal 11*P*

Greggs, M. D. Electrical activity of the motor cortex associated with voluntary movements in the baboon 12*P*

Brindley, G. S. & Rushton, D. N. Does pain depend on an unbalance between impulses in small and large nerve fibres? (T) 13*P*

Blatchley, Francesca R., Donovan, B. T. & ter Haar, M. B. Plasma progesterone and gonadotrophin levels in the conscious guinea-pig during the normal oestrous cycle and following uterine bead insertion (T) 13*P*

Cooper, J. D. & Hewett, T. D. Remote control system for very small micro-electrode advancers 13*P*

Donaldson, P. E. K. A microelectronics laboratory for implant making (T) . . 15*P*

Brindley, G. S. Emptying the bladder by stimulating sacral ventral roots . . 15*P*

Allen, D. J. A method for regulating return blood flow in an extra-corporeal circuit 17*P*

Sears, T. A. The visualization *in vivo* of neural elements and the micro-circulation of rat spinal roots 18*P*

Berry, M. S., Cottrell, G. A., Pentreath, V. W. & Powell, B. Catecholamine micro-analysis and morphology of a giant dopamine-containing neurone . . . 19*P*

Brindley, G. S. & Rushton, D. N. The stability of the map of the visual field on the human occipital cortex (T) 20*P*

COMMUNICATIONS

Ikeda, Hisako & Wright, M. J. Effect of halothane/nitrous oxide anaesthesia on the behaviour of 'sustained' and 'transient' visual cortical neurones . . . 20*P*

Baños, Guadalupe, Daniel, P. M., Moorhouse, S. R., Pratt, O. E. & Wilson, Penelope. Inhibition of neutral amino acid entry into the brain of the rat *in vivo* . . 22*P*

Floyd, K. & Morrison, J. F. B. Splanchnic slowly adapting mechanoreceptors in dogs and sheep 23*P*

Few, J. D., Imms, F. J. & Weiner, J. S. The adrenal response to static work . 24*P*

Dreifuss, J. J., Nordmann, J. J. & Vincent, J. D. Recurrent inhibition of supra-optic neurosecretory cells in homozygous Brattleboro rats 25*P*

PAGE

Levin, R. J. & Pawlowski, J. Micro-electrode studies on endometrial cells of rat uterus 27*P*

Chapman, R. A. & Léoty, Cl. Similarities between the potassium contractures and those induced by hypertonic solutions in rat ventricular trabeculae . . 28*P*

Anlezark, G. M., Arbuthnott, G. W., Christie, J. E., Crow, T. J. & Spear, P. J. Electrical self-stimulation in relation to cells of origin of catecholamine-containing neural systems ascending from the brain stem 31*P*

Neill, D. W., Surgeon, I. C., Wainwright, R. S. & Wallace, W. F. M. A comparison of ear arteries from (*a*) heat- and (*b*) cold-exposed rabbits with respect to noradrenaline uptake and content 32*P*

Robertson, H. A. & Steele, J. E. Octopamine in the insect central nervous system: distribution, biosynthesis and possible physiological role 34*P*

Creasey, J. M., Pattle, R. E. & Schock, C. Ultrastructure of inclusion bodies in Type II cells of lung, human and sub-simian 35*P*

Allen, Judith A., Armstrong, Janet E. & Roddie, I. C. The regional distribution of emotional sweating in man (T) 37*P*

Fink, G. & Jamieson, M. G. Effect of electrical stimulation of the preoptic area on luteinizing hormone releasing factor in pituitary stalk blood 37*P*

MacKay, D. M. & MacKay, Valerie. The time course of the McCollough effect and its physiological implications 38*P*

Blakemore, C., Donaghy, M. J., Maffei, L., Movshon, J. A., Rose, D. & Van Sluyters, R. C. Evidence that nitrous oxide can maintain anaesthesia after induction with barbiturates 39*P*

Harris, D., Reed, J. D., Smy, J. R. & Venables, C. W. The effects of burimamide on gastric acid secretion and gastric mucosal blood flow in the anaesthetized cat 41*P*

Horrobin, D. F., Manku, M. S. & Nassar, B. A. Effect of prolactin on the responses of the rat mesenteric vascular bed to noradrenaline and to angiotensin (T) . 43*P*

Meech, R. W. & Standen, N. B. Calcium-mediated potassium activation in *Helix* neurones 43*P*

Herxheimer, H. Prostaglandins E_1 and E_2 prevent bronchoconstriction in the guinea-pig (T) 44*P*

Claret, Brigitte, Claret, M. & Mazet, J. L. Passive K fluxes in isolated and perfused rat liver 44*P*

Argibay, J. A., Hutter, O. F. & Slack, J. R. Consecutive activation and inactivation of the delayed rectifier in skeletal muscle fibres 46*P*

Creed, K. E. & Gillespie, J. S. The effect of excitatory or inhibitory nerve stimulation on the membrane potential of the rat anococcygeus muscle 47*P*

Kappagoda, C. T., Linden, R. J., Snow, H. M. & Whitaker, E. M. Left atrial receptors and diuresis in the dog 48*P*

Vassort, G. Initial ionic currents in guinea-pig myometrium 50*P*

Breathnach, C. S. Uterine blood flow in sheep (kept on pasture) 51*P*

Broughton Pipkin, Fiona, Lumbers, Eugenie R. & Mott, Joan C. Plasma renin and angiotensin II in conscious pregnant ewes and their lambs 52*P*

Michell, A. R. The effect of diphenylhydantoin on sodium appetite in rats . . 53*P*

Brindley, G. S., Craggs, M. D. & Rushton, D. N. Fatigue in the human external anal sphincter and external urethral sphincter under electrical stimulation of their motor nerve fibres 55*P*

Hodgson, Catherine & Speirs, R. L. The effect of preganglionic cervical sympathectomy on the amylase content of parotid glands in fasted and fed rats . 56*P*

AUTHOR INDEX

(D) Denotes Demonstration. (T) Title only.

PAGE

ADRIAN, R. H. and ALMERS, W. Membrane capacity measurements on frog skeletal muscle in media of low ion content. With an Appendix by R. H. ADRIAN, W. ALMERS and W. K. CHANDLER 573

ALLEN, D. J. A method for regulating return blood flow in an extra-corporeal circuit 17*P*

ALLEN, JUDITH A., ARMSTRONG, JANET E. and RODDIE, I. C. The regional distribution of emotional sweating in man (T) 37*P*

ALMERS, W. and ADRIAN, R. H. Membrane capacity measurements on frog skeletal muscle in media of low ion content. With an Appendix by R. H. ADRIAN, W. ALMERS and W. K. CHANDLER 573

ALPERN, M. and PUGH, JR, E. N. The density and photosensitivity of human rhodopsin in the living retina 341

ANDERSON, M. J. and COHEN, M. W. Fluorescent staining of acetylcholine receptors in vertebrate skeletal muscle 385

ANLEZARK, G. M., ARBUTHNOTT, G. W., CHRISTIE, J. E., CROW, T. J. and SPEAR, P. J. Electrical self-stimulation in relation to cells of origin of catecholamine-containing neural systems ascending from the brain stem 31*P*

ARBUTHNOTT, G. W., ANLEZARK, G. M., CHRISTIE, J. E., CROW, T. J. and SPEAR, P. J. Electrical self-stimulation in relation to cells of origin of catecholamine-containing neural systems ascending from the brain stem 31*P*

ARGIBAY, J. A., HUTTER, O. F. and SLACK, J. R. Consecutive activation and inactivation of the delayed rectifier in skeletal muscle fibres 46*P*

ARMSTRONG, JANET E., ALLEN, JUDITH A. and RODDIE, I. C. The regional distribution of emotional sweating in man (T) 37*P*

BAGUST, J. and LEWIS, D. M. Isometric contractions of motor units in self-reinnervated fast and slow twitch muscles of the cat 91

BAGUST, J., LEWIS, D. M. and LUCK, J. C. Post-tetanic effects in motor units of fast and slow twitch muscles of the cat 115

BAGUST, J., LEWIS, D. M. and WESTERMAN, R. A. The properties of motor units in a fast and a slow twitch muscle during post-natal development in the kitten 75

BAÑOS, GUADALUPE, DANIEL, P. M., MOORHOUSE, S. R., PRATT, O. E. and WILSON, PENELOPE. Inhibition of neutral amino acid entry into the brain of the rat *in vivo* 22*P*

BARKER, G. R., COCHRANE, G. MCL., CORBETT, G. A., HUNT, J. N. and KEMP ROBERTS, SUSAN. Actions of glucose and potassium chloride on osmoreceptors slowing gastric emptying 183

BARRETT, ELLEN, F., BARRETT, J. N., MARTIN, A. R. and RAHAMIMOFF, R. A note on the interaction of spontaneous and evoked release at the frog neuromuscular junction 453

BARRETT, J. N., BARRETT, ELLEN F., MARTIN, A. R. and RAHAMIMOFF, R. A note on the interaction of spontaneous and evoked release at the frog neuromuscular junction 453

BELCARI, PAOLA, CARLI, G. and STRATA, P. The projection of the posterior knee joint nerve to the cerebellar cortex 371

BERRY, M. S., COTTRELL, G. A., PENTREATH, V. W. and POWELL, B. Catecholamine microanalysis and morphology of a giant dopamine-containing neurone (D) . 19*P*

PAGE

BLAKEMORE, COLIN, DONAGHY, M. J., MAFFEI, L., MOVSHON, J. A., ROSE, D. and VAN SLUYTERS, R. C. Evidence that nitrous oxide can maintain anaesthesia after induction with barbiturates 39*P*

BLAKEMORE, COLIN and VAN SLUYTERS, RICHARD C. Reversal of the physiological effects of monocular deprivation in kittens: further evidence for a sensitive period 195

BLATCHLEY, FRANCESCA R., DONOVAN, B. T. and TER HAAR, M. B. Plasma progesterone and gonadotrophin levels in the conscious guinea-pig during the normal oestrous cycle and following uterine bead insertion (T), (D) . . 13*P*

BREATHNACH, C. S. Uterine blood flow in sheep (kept on pasture) . . . 51*P*

BRESSLER, B. H. and CLINCH, N. F. The compliance of contracting skeletal muscle 477

BRINDLEY, G. S. Emptying the bladder by stimulating sacral ventral roots (D) . 15*P*

BRINDLEY, G. S., CRAGGS, M. D. and RUSHTON, D. N. Fatigue in the human external anal sphincter and external urethral sphincter under electrical stimulation of their motor nerve fibres 55*P*

BRINDLEY, G. S. and RUSHTON, D. N. Does pain depend on an unbalance between impulses in small and large nerve fibres? (T), (D) 13*P*

BRINDLEY, G. S. and RUSHTON, D. N. The stability of the map of the visual field on the human occipital cortex (T), (D) 20*P*

BROUGHTON PIPKIN, FIONA, LUMBERS, EUGENIE R. and MOTT, JOAN C. Plasma renin and angiotensin II in conscious pregnant ewes and their lambs . . . 52*P*

BROWSE, N. L., RUTT, D. R., SIZELAND, D. and TAYLOR, ALEXIS. The velocity of lymph flow in the canine thoracic duct 401

BURKHART, SALLY M. and LEDSOME, J. R. The response to distension of the pulmonary vein–left atrial junctions in dogs with spinal section . . . 685

CARLI, G., BELCARI, PAOLA and STRATA, P. The projection of the posterior knee joint nerve to the cerebellar cortex 371

CEREIJIDO, M., RABITO, C. A., RODRÍGUEZ BOULAN, E. and ROTUNNO, CATALINA A. The sodium-transporting compartment of the epithelium of frog skin . . 555

CHANDLER, W. K., ADRIAN, R. H. and ALMERS, W. An Appendix to Membrane capacity measurements on frog skeletal muscle in media of low ion content, by R. H. ADRIAN and W. ALMERS 573

CHAPMAN, R. A. A study of the contractures induced in frog atrial trabeculae by a reduction of the bathing sodium concentration 295

CHAPMAN, R. A. and LÉOTY, CL. Similarities between the potassium contractures and those induced by hypertonic solutions in rat ventricular trabeculae . 28*P*

CHRISTIE, J. E., ANLEZARK, G. M., ARBUTHNOTT, G. W., CROW, T. J. and SPEAR, P. J. Electrical self-stimulation in relation to cells of origin of catecholamine-containing neural systems ascending from the brain stem 31*P*

CLARET, BRIGITTE, CLARET, M. and MAZET, J. L. Passive K fluxes in isolated and perfused rat liver 44*P*

CLARET, M., CLARET, BRIGITTE and MAZET, J. L. Passive K fluxes in isolated and perfused rat liver 44*P*

CLINCH, N. F. and BRESSLER, B. H. The compliance of contracting skeletal muscle 477

COCHRANE, G. MCL., BARKER, G. R., CORBETT, G. A., HUNT, J. N. and KEMP ROBERTS, SUSAN. Actions of glucose and potassium chloride on osmoreceptors slowing gastric emptying 183

COHEN, M. W. and ANDERSON, M. J. Fluorescent staining of acetylcholine receptors in vertebrate skeletal muscle 385

PAGE

COOK, G. C. Effect of glycylglycine and glycine on jejunal absorption rate of L-histidine in man *in vivo* 187

COOPER, J. D. and HEWETT, T. D. Remote control system for very small microelectrode advancers (D) 13*P*

CORBETT, G. A., BARMER, G. R., COCHRANE, G. McL., HUNT, J. N. and KEMP ROBERTS, SUSAN. Actions of glucose and potassium chloride on osmoreceptors slowing gastric emptying 183

COTTRELL, G. A., BERRY, M. S., PENTREATH, V. W. and POWELL, B. Catecholamine microanalysis and morphology of a giant dopamine-containing neurone (D) 19*P*

CRAGGS, M. D. Electrical activity of the motor cortex associated with voluntary movements in the baboon (D) 12*P*

CRAGGS, M. D., BRINDLEY, G. S. and RUSHTON, D. N. Fatigue in the human external anal sphincter and external urethral sphincter under electrical stimulation of their motor nerve fibres 55*P*

CREASEY, J. M., PATTLE, R. E. and SCHOCK, C. Ultrastructure of inclusion bodies in Type II cells of lung, human and sub-simian. 35*P*

CREED, K. E. and GILLESPIE, J. S. The effect of excitatory or inhibitory nerve stimulation on the membrane potential of the rat anococcygeus muscle . 47*P*

CROW, T. J., ANLEZARK, G. M., ARBUTHNOTT, G. W., CHRISTIE, J. E. and SPEAR, P. J. Electrical self-stimulation in relation to cells of origin of catecholamine-containing neural systems ascending from the brain stem 31*P*

DANIEL, P. M., BAÑOS, GUADALUPE, MOORHOUSE, S. R., PRATT, O. E. and WILSON, PENELOPE. Inhibition of neutral amino acid entry into the brain of the rat *in vivo* 22*P*

DANIEL, P. M., DONALDSON, JANE and PRATT, O. E. The rapid achievement and maintenance of a steady level of an injected substance in the blood plasma (D) 8*P*

DANIEL, P. M., LOVE, E. R., MOORHOUSE, S. R., PRATT, O. E. and WILSON, PENELOPE. A method for rapidly washing the blood out of an organ or tissue of the anaesthetized living animal (D) 11*P*

DENNIS, M. J. and MILEDI, R. Electrically induced release of acetylcholine from denervated Schwann cells 431

DONAGHY, M. J., BLAKEMORE, C., MAFFEI, L., MOVSHON, J. A., ROSE, D. and VAN SLUYTERS, R. C. Evidence that nitrous oxide can maintain anaesthesia after induction with barbiturates 39*P*

DONALDSON, JANE, DANIEL, P. M. and PRATT, O. E. The rapid achievement and maintenance of a steady level of an injected substance in the blood plasma (D) 8*P*

DONALDSON, P. E. K. A microelectronics laboratory for implant making (T), (D). 15*P*

DONOVAN, B. T., BLATCHLEY, FRANCESCA R. and TER HAAR, M. B. Plasma progesterone and gonadotrophin levels in the conscious guinea-pig during the normal oestrous cycle and following uterine bead insertion (T), (D) . . 13*P*

DREIFUSS, J. J., NORDMANN, J. J. and VINCENT, J. D. Recurrent inhibition of supraoptic neurosecretory cells in homozygous Brattleboro rats 25*P*

DUBOCOVICH, MARGARITA L. and LANGER, S. Z. Negative feedback regulation of noradrenaline release by nerve stimulation in the perfused cat's spleen: differences in potency of phenoxybenzamine in blocking the pre- and postsynaptic adrenergic receptors. 505

DUCHEN, L. W. A dominant hereditary sensory disorder in the mouse with deficiency of muscle spindles: the mutant *Sprawling* (D) 10*P*

ETTLINGER, G., HESTER, N. and RIDLEY, R. M. Recording from single-cells in infero-temporal cortex of the monkey during discrimination performance (D) 6*P*

PAGE

FEW, J. D., IMMS, F. J. and WEINER, J. S. The adrenal response to static work . 24*P*

FINK, G. and JAMIESON, M. G. Effect of electrical stimulation of the preoptic area on luteinizing hormone releasing factor in pituitary stalk blood . . . 37*P*

FLOYD, K. and MORRISON, J. F. B. Splanchnic slowly adapting mechanoreceptors in dogs and sheep 23*P*

GARRETT, J. R. and PARSONS, PATRICIA A. Movement of horseradish peroxidase in submandibular glands of rabbits after arterial injection (D) 3*P*

GILLESPIE, J. S. and CREED, K. E. The effect of excitatory or inhibitory nerve stimulation on the membrane potential of the rat anococcygeus muscle . 47*P*

GREENWAY, C. V. and LISTER, G. E. Capacitance effects and blood reservoir function in the splanchnic vascular bed during non-hypotensive haemorrhage and blood volume expansion in anaesthetized cats. 279

HARRIS, D., REED, J. D., SMY, J. R. and VENABLES, C. W. The effects of burimamide on gastric acid secretion and gastric mucosal blood flow in the anaesthetized cat 41*P*

HEINL, P., KUHN, H. J. and RÜEGG, J. C. Tension responses to quick length changes of glycerinated skeletal muscle fibres from the frog and tortoise . 243

HERXHEIMER, H. Prostaglandins E_1 and E_2 prevent bronchoconstriction in the guinea-pig (T) 44*P*

HESTER, N., ETTLINGER, G. and RIDLEY, R. M. Recording from single-cells in inferotemporal cortex of the monkey during discrimination performance (D) . 6*P*

HEWETT, T. D. and COOPER, J. D. Remote control system for very small microelectrode advancers (D) 13*P*

HODGSON, CATHERINE and SPEIRS, R. L. The effect of preganglionic cervical sympathectomy on the amylase content of parotid glands in fasted and fed rats . 56*P*

HORROBIN, D. F., MANKU, M. S. and NASSAR, B. A. Effect of prolactin on the responses of the rat mesenteric vascular bed to noradrenaline and to angiotensin (T) 43*P*

HUNT, J. N., BARKER, G. R., COCHRANE, G. McL., CORBETT, G. A. and KEMP ROBERTS, SUSAN. Actions of glucose and potassium chloride on osmoreceptors slowing gastric emptying 183

HUTTER, O. F., ARGIBAY, J. A. and SLACK, J. R. Consecutive activation and inactivation of the delayed rectifier in skeletal muscle fibres 46*P*

IKEDA, HISAKO and WRIGHT, M. J. Effect of halothane/nitrous oxide anaesthesia on the behaviour of 'sustained' and 'transient' visual cortical neurones . 20*P*

IMMS, F. J., FEW, J. D. and WEINER, J. S. The adrenal response to static work . 24*P*

JAANUS, SIRET D. and RUBIN, R. P. Analysis of the role of cyclic adenosine 3′,5′-monophosphate in catecholamine release 465

JAMIESON, M. G. and FINK, G. Effect of electrical stimulation of the preoptic area on luteinizing hormone releasing factor in pituitary stalk blood . . . 37*P*

KAPPAGODA, C. T., LINDEN, R. J., SNOW, H. M. and WHITAKER, ELAINE M. Left atrial receptors and the antidiuretic hormone 663

KAPPAGODA, C. T., LINDEN, R. J., SNOW, H. M. and WHITAKER, E. M. Left atrial receptors and diuresis in the dog 48*P*

KEAN, C. J. C., LEWIS, D. M. and MCGARRICK, J. D. Dynamic properties of denervated fast and slow twitch muscles of the cat 103

KEMP ROBERTS, SUSAN, BARKER, G. R., COCHRANE, G. McL., CORBETT, G. A. and HUNT, J. N. Actions of glucose and potassium chloride on osmoreceptors slowing gastric emptying 183

KUHN, H. J., HEINL, P. and RÜEGG, J. C. Tension responses to quick length changes of glycerinated skeletal muscle fibres from the frog and tortoise . . . 243

PAGE

LANGER, S. Z. and DUBOCOVICH, MARGARITA L. Negative feedback regulation of noradrenaline release by nerve stimulation in the perfused cat's spleen: differences in potency of phenoxybenzamine in blocking the pre- and post-synaptic adrenergic receptors 505

LEDSOME, J. R. and BURKHART, SALLY M. The response to distension of the pulmonary vein–left atrial junctions in dogs with spinal section . . . 685

LÉOTY, CL. and CHAPMAN, R. A. Similarities between the potassium contractures and those induced by hypertonic solutions in rat ventricular trabeculae . 28*P*

LEWIS, D. M. and BAGUST, J. Isometric contractions of motor units in self-reinnervated fast and slow twitch muscles of the cat 91

LEWIS, D. M., BAGUST, J. and LUCK, J. C. Post-tetanic effects in motor units of fast and slow twitch muscles of the cat 115

LEWIS, D. M., BAGUST, J. and WESTERMAN, R. A. The properties of motor units in a fast and a slow twitch muscle during post-natal development in the kitten 75

LEWIS, D. M., KEAN, C. J. C. and MCGARRICK, J. D. Dynamic properties of denervated fast and slow twitch muscles of the cat 103

LEVIN, R. J. and PAWLOWSKI, J. Micro-electrode studies on endometrial cells of rat uterus 27*P*

LIBET, B. and OWMAN, CH. Concomitant changes in formaldehyde-induced fluorescence of dopamine interneurones and in slow inhibitory post-synaptic potentials of the rabbit superior cervical ganglion, induced by stimulation of the preganglionic nerve or by a muscarinic agent 635

LINDEN, R. J., KAPPAGODA, C. T., SNOW, H. M. and WHITAKER, ELAINE M. Left atrial receptors and the antidiuretic hormone 663

LINDEN, R. J., KAPPAGODA, C. T., SNOW, H. M. and WHITAKER, E. M. Left atrial receptors and diuresis in the dog 48*P*

LISTER, G. E. and GREENWAY, C. V. Capacitance effects and blood reservoir function in the splanchnic vascular bed during non-hypotensive haemorrhage and blood volume expansion in anaesthetized cats. 279

LOVE, E. R., DANIEL, P. M., MOORHOUSE, S. R., PRATT, O. E. and WILSON, PENELOPE. A method for rapidly washing the blood out of an organ or tissue of the anaesthetized living animal (D) 11*P*

LUCK, J. C., BAGUST, J. and LEWIS, D. M. Post-tetanic effects in motor units of fast and slow twitch muscles of the cat 115

LUMBERS, EUGENIE R., BROUGHTON PIPKIN, FIONA and MOTT, JOAN C. Plasma renin and angiotensin II in conscious pregnant ewes and their lambs . . 52*P*

MCGARRICK, J. D., KEAN, C. J. C. and LEWIS, D. M. Dynamic properties of denervated fast and slow twitch muscles of the cat 103

MACKAY, D. M. and MACKAY, VALERIE. The time course of the McCollough effect and its physiological implications 38*P*

MACKAY, VALERIE and MACKAY, D. M. The time course of the McCollough effect and its physiological implications 38*P*

MCLACHLAN, ELSPETH M. The formation of synapses in mammalian sympathetic ganglia reinnervated with preganglionic or somatic nerves 217

MCLENNAN, H. and MILLER, J. J. The hippocampal control of neuronal discharges in the septum of the rat. 607

MCLENNAN, H. and MILLER, J. J. γ-Aminobutyric acid and inhibition in the septal nuclei of the rat 625

MAFFEI, L., BLAKEMORE, C., DONAGHY, M. J., MOVSHON, J. A., ROSE, D. and VAN SLUYTERS, R. C. Evidence that nitrous oxide can maintain anaesthesia after induction with barbiturates 39*P*

PAGE

MANKU, M. S., HORROBIN, D. F. and NASSAR, B. A. Effect of prolactin on the responses of the rat mesenteric vascular bed to noradrenaline and to angiotensin 43*P*

MARTIN, A. R., BARRETT, ELLEN F., BARRETT, J. N. and RAHAMIMOFF, R. A note on the interaction of spontaneous and evoked release at the frog neuromuscular junction 453

MAZET, J. L., CLARET, BRIGITTE and CLARET, M. Passive fluxes in isolated and perfused rat liver 44*P*

MEECH, R. W. The sensitivity of *Helix aspersa* neurones to injected calcium ions 259

MEECH, R. W. and STANDEN, N. B. Calcium-mediated potassium activation in *Helix* neurones 43*P*

MERCER, P. F. and ZUSKO, E. A. Whole kidney and cortical blood flow in rats on high and low sodium diets 495

MICHELL, A. R. The effect of diphenylhydantoin on sodium appetite in rats. . 53*P*

MILEDI, R. and DENNIS, M. J. Electrically induced release of acetylcholine from denervated Schwann cells 431

MILLER, J. J. and MCLENNAN, H. The hippocampal control of neuronal discharges in the septum of the rat. 607

MILLER, J. J. and MCLENNAN, H. γ-Aminobutyric acid and inhibition in the septal nuclei of the rat 625

MOORHOUSE, S. R., BAÑOS, GUADALUPE, DANIEL, P. M., PRATT, O. E. and WILSON, PENELOPE. Inhibition of neutral amino acid entry into the brain of the rat *in vivo* 22*P*

MOORHOUSE, S. R., DANIEL, P. M., LOVE, E. R., PRATT, O. E. and WILSON, PENELOPE. A method for rapidly washing the blood out of an organ or tissue of the anaesthetized living animal (D) 11*P*

MORRISON, J. F. B. and FLOYD, K. Splanchnic slowly adapting mechanoreceptors in dogs and sheep 23*P*

MOTT, JOAN C., BROUGHTON PIPKIN, FIONA and LUMBERS, EUGENIE R. Plasma renin and angiotensin II in conscious pregnant ewes and their lambs . . 52*P*

MOVSHON, J. A., BLAKEMORE, C., DONAGHY, M. J., MAFFEI, L., ROSE, D. and VAN SLUYTERS, R. C. Evidence that nitrous oxide can maintain anaesthesia after induction with barbiturates 39*P*

NASSAR, B. A., HORROBIN, D. F. and MANKU, M. S. Effect of prolactin on the responses of the rat mesenteric vascular bed to noradrenaline and to angiotensin 43*P*

NEILL, D. W., SURGEON, I. C., WAINWRIGHT, R. S. and WALLACE, W. F. M. A comparison of ear arteries from (*a*) heat- and (*b*) cold-exposed rabbits with respect to noradrenaline uptake and content 32*P*

NEWHOOK, J. C. and TITCHEN, D. A. Effects of vagotomy, atropine, hexamethonium and adrenaline on the destination in the stomach of liquids sucked by milk-fed lambs and calves 415

NORDMANN, J. J., DREIFUSS, J. J. and VINCENT, J. D. Recurrent inhibition of supraoptic neurosecretory cells in homozygous Brattleboro rats 25*P*

OWMAN, CH. and LIBET, B. Concomitant changes in formaldehyde-induced fluorescence of dopamine interneurones and in slow inhibitory post-synaptic potentials of the rabbit superior cervical ganglion, induced by stimulation of the preganglionic nerve or by a muscarinic agent 635

PARSONS, PAT A. and GARRETT, J. R. Movement of horseradish peroxidase in submandibular glands of rabbits after arterial injection (D) 3*P*

PAGE

PATTLE, R. E., CREASEY, J. M. and SCHOCK, C. Ultrastructure of inclusion bodies in Type II cells of lung, human and sub-simian 35P

PAWLOWSKI, J. and LEVIN, R. J. Micro-electrode studies on endometrial cells of rat uterus 27P

PENTREATH, V. W., BERRY, M. S., COTTRELL, G. A. and POWELL, B. Catecholamine microanalysis and morphology of a giant dopamine-containing neurone (D) . 19P

PETTIGREW, J. D. The effect of visual experience on the development of stimulus specificity by kitten cortical neurones 49

PONTE, J. and PURVES, M. J. The role of the carotid body chemoreceptors and carotid sinus baroreceptors in the control of cerebral blood vessels . . 315

POWELL, B., BERRY, M. S., COTTRELL, G. A. and PENTREATH, V. W. Catecholamine microanalysis and morphology of a giant dopamine-containing neurone (D) . 19P

PRATT, O. E. An electronically controlled syringe drive for giving an injection at a variable rate according to a preset programme (D) 5P

PRATT, O. E., BAÑOS, GUADALUPE, DANIEL, P. M., MOORHOUSE, S. R. and WILSON, PENELOPE. Inhibition of neutral amino acid entry into the brain of the rat *in vivo* 22P

PRATT, O. E., DANIEL, P. M. and DONALDSON, JANE. The rapid achievement and maintenance of a steady level of an injected substance in the blood plasma (D) 8P

PRATT, O. E., DANIEL, P. M., LOVE, E. R., MOORHOUSE, S. R. and WILSON, PENELOPE. A method for rapidly washing the blood out of an organ or tissue of the anaesthetized living animal (D) 11P

PUGH, JR., E. N. and ALPERN, M. The density and photosensitivity of human rhodopsin in the living retina. 341

PURVES, D. and SAKMANN, B. The effect of contractile activity on fibrillation and extrajunctional acetylcholine-sensitivity in rat muscle maintained in organ culture 157

PURVES, M. J. and PONTE, J. The role of the carotid body chemoreceptors and carotid sinus baroreceptors in the control of cerebral blood vessels . . . 315

RABITO, C. A., CEREIJIDO, M., RODRÍGUEZ BOULAN, E. and ROTUNNO, CATALINA A. The sodium-transporting compartment of the epithelium of frog skin . . 555

RAHAMIMOFF, R., BARRETT, ELLEN F., BARRETT, J. N. and MARTIN, A. R. A note on the interaction of spontaneous and evoked release at the frog neuromuscular junction 453

RAMPTON, D. S. and RAMSAY, D. J. The effects of pentobarbitone anaesthesia on the volume and composition of the extracellular fluid of dogs . . . 521

RAMPTON, D. S. and RAMSAY, D. J. The effects of the production of sodium depletion by peritoneal dialysis with 5% glucose on the volume and composition of the extracellular fluid of dogs 535

RAMSAY, D. J. and RAMPTON, D. S. The effects of pentobarbitone anaesthesia on the volume and composition of the extracellular fluid of dogs 521

RAMSAY, D. J. and RAMPTON, D. S. The effects of the production of sodium depletion by peritoneal dialysis with 5% glucose on the volume and composition of the extracellular fluid of dogs 535

REED, J. D., HARRIS, D., SMY, J. R. and VENABLES, C. W. The effects of burimamide on gastric acid secretion and gastric mucosal blood flow in the anaesthetized cat 41P

RIDLEY, R. M., ETTLINGER, G. and HESTER, N. Recording from single-cells in infero-temporal cortex of the monkey during discrimination performance (D) 6P

PAGE

ROBERTSON, H. A. and STEELE, J. E. Octopamine in the insect central nervous system: distribution, biosynthesis and possible physiological role . . . 34*P*

RODDIE, I. C., ALLEN, JUDITH A. and ARMSTRONG, JANET E. The regional distribution of emotional sweating in man (T) 37*P*

RODRÍGUEZ BOULAN, E., CEREIJIDO, M., RABITO, C. A. and ROTUNNO, CATALINA A. The sodium-transporting compartment of the epithelium of frog skin . . 555

ROSE, D., BLAKEMORE, C., DONAGHY, M. J., MAFFEI, L., MOVSHON, J. A. and VAN SLUYTERS, R. C. Evidence that nitrous oxide can maintain anaesthesia after induction with barbiturates 39*P*

ROTUNNO, CATALINA A., CEREIJIDO, M., RABITO, C. A. and RODRÍGUEZ BOULAN, E. The sodium-transporting compartment of the epithelium of frog skin . 555

RUBIN, R. P. and JAANUS, SIRET D. Analysis of the role of cyclic adenosine 3′,5′-monophosphate in catecholamine release 465

RÜEGG, J. C., HEINL, P. and KUHN, H. J. Tension responses to quick length changes of glycerinated skeletal muscle fibres from the frog and tortoise . . . 243

RUSHTON, D. N. and BRINDLEY, G. S. Does pain depend on an unbalance between impulses in small and large nerve fibres? (T), (D) 13*P*

RUSHTON, D. N. and BRINDLEY, G. S. The stability of the map of the visual field on the human occipital cortex (T), (D) 20*P*

RUSHTON, D. N., BRINDLEY, G. S. and CRAGGS, M. D. Fatigue in the human external anal sphincter and external urethral sphincter under electrical stimulation of their motor nerve fibres 55*P*

RUTT, D. R., BROWSE, N. L., SIZELAND, D. and TAYLOR, ALEXIS. The velocity of lymph flow in the canine thoracic duct 401

SAKMANN, B. and PURVES, D. The effect of contractile activity on fibrillation and extrajunctional acetylcholine-sensitivity in rat muscles maintained in organ culture 157

SCHOCK, C., CREASEY, J. M. and PATTLE, R. E. Ultrastructure of inclusion bodies in Type II cells of lung, human and sub-simian 35*P*

SEARS, T. A. The visualization *in vivo* of neural elements and the micro-circulation of rat spinal roots (D) 18*P*

SIMONS, T. J. B. Potassium: potassium exchange catalysed by the sodium pump in human red cells 123

SIZELAND, D., BROWSE, N. L., RUTT, D. R. and TAYLOR, ALEXIS. The velocity of lymph flow in the canine thoracic duct 401

SLACK, J. R., ARGIBAY, J. A. and HUTTER, O. F. Consecutive activation and inactivation of the delayed rectifier in skeletal muscle fibres 46*P*

SMY, J. R., HARRIS, D., REED, J. D. and VENABLES, C. W. The effects of burimamide on gastric acid secretion and gastric mucosal blood flow in the anaesthetized cat 41*P*

SNOW, H. M., KAPPAGODA, C. T., LINDEN, R. J. and WHITAKER, ELAINE M. Left atrial receptors and the antidiuretic hormone 663

SNOW, H. M., KAPPAGODA, C. T., LINDEN, R. J. and WHITAKER, E. M. Left atrial receptors and diuresis in the dog 48*P*

SPEAR, P. J., ANLEZARK, G. M., ARBUTHNOTT, G. W., CHRISTIE, J. E. and CROW, T. J. Electrical self-stimulation in relation to cells of origin of catecholamine-containing neural systems ascending from the brain stem 31*P*

SPEIRS, R. L. and HODGSON, CATHERINE. The effect of preganglionic cervical sympathectomy on the amylase content of parotid glands in fasted and fed rats 56*P*

SPENCER, JAN. Gastric secretion in the isolated stomach of the guinea-pig (D) . 1*P*

PAGE

SPRAY, DAVID C. Characteristics, specificity, and efferent control of frog cutaneous cold receptors 15

STANDEN, N. B. and MEECH, R. W. Calcium-mediated potassium activation in *Helix* neurones 43P

STEELE, J. E. and ROBERTSON, H. A. Octopamine in the insect central nervous system: distribution, biosynthesis and possible physiological role . . . 34P

STRATA, P., BELCARI, PAOLA and CARLI, G. The projection of the posterior knee joint nerve to the cerebellar cortex 371

SURGEON, I. C., NEILL, D. W., WAINWRIGHT, R. S. and WALLACE, W. F. M. A comparison of ear arteries from (*a*) heat- and (*b*) cold-exposed rabbits with respect to noradrenaline uptake and content 32P

TAYLOR, ALEXIS, BROWSE, N. L., RUTT, D. R. and SIZELAND, D. The velocity of lymph flow in the canine thoracic duct 401

TER HAAR, M. B., BLATCHLEY, FRANCESCA R. and DONOVAN, B. T. Plasma progesterone and gonadotrophin levels in the conscious guinea-pig during the normal oestrous cycle and following uterine bead insertion (T), (D) . . 13P

TITCHEN, D. A. and NEWHOOK, J. C. Effects of vagotomy, atropine, hexamethonium and adrenaline on the destination in the stomach of liquids sucked by milk-fed lambs and calves 415

VAN SLUYTERS, RICHARD C. and BLAKEMORE, COLIN. Reversal of the physiological effects of monocular deprivation in kittens: further evidence for a sensitive period 195

VAN SLUYTERS, R. C., BLAKEMORE, C., DONAGHY, M. J., MAFFEI, L., MOVSHON, J. A. and ROSE, D. Evidence that nitrous oxide can maintain anaesthesia after induction with barbiturates 39P

VASSORT, G. Initial ionic currents in guinea-pig myometrium 50P

VENABLES, C. W., HARRIS, D., REED, J. D. and SMY, J. R. The effects of burimamide on gastric acid secretion and gastric mucosal blood flow in the anaesthetized cat 41P

VINCENT, J. D., DREIFUSS, J. J. and NORDMANN, J. J. Recurrent inhibition of supraoptic neurosecretory cells in homozygous Brattleboro rats 25P

WAINWRIGHT, R. S., NEILL, D. W., SURGEON, I. C. and WALLACE, W. F. M. A comparison of ear arteries from (*a*) heat- and (*b*) cold-exposed rabbits with respect to noradrenaline uptake and content 32P

WALLACE, W. F. M., NEILL, D. W., SURGEON, I. C. and WAINWRIGHT, R. S. A comparison of ear arteries from (*a*) heat- and (*b*) cold-exposed rabbits with respect to noradrenaline uptake and content 32P

WEINER, J. S., FEW, J. D. and IMMS, F. J. The adrenal response to static work . 24P

WESTERMAN, R. A., BAGUST, J. and LEWIS, D. M. The properties of motor units in a fast and a slow twitch muscle during post-natal development in the kitten 75

WHITAKER, ELAINE M., KAPPAGODA, C. T., LINDEN, R. J. and SNOW, H. M. Left atrial receptors and the antidiuretic hormone 663

WHITAKER, E. M., KAPPAGODA, C. T., LINDEN, R. J. and SNOW, H. M. Left atrial receptors and diuresis in the dog 48P

WILSON, PENELOPE, BAÑOS, GUADALUPE, DANIEL, P. M., MOORHOUSE, S. R. and PRATT, O. E. Inhibition of neutral amino acid entry into the brain of the rat *in vivo* 22P

PAGE

WILSON, PENELOPE, DANIEL, P. M., LOVE, E. R., MOORHOUSE, S. R. and PRATT, O. E. A method for rapidly washing the blood out of an organ or tissue of the anaesthetized living animal (D) 11*P*

WRAIGHT, E. P. Capillary permeability to protein as a factor in the control of plasma volume 39

WRIGHT, M. J. and IKEDA, HISAKO. Effect of halothane/nitrous oxide anaesthesia on the behaviour of 'sustained' and 'transient' visual cortical neurones . . 20*P*

YOUNKIN, S. G. An analysis of the role of calcium in facilitation at the frog neuromuscular junction 1

ZUSKO, E. A. and MERCER, P. F. Whole kidney and cortical blood flow in rats on high and low sodium diets 495

SUBJECT INDEX

Absorption, effect of glycylglycine and glycine on jejunal – rate of L-histidine in man *in vivo*, 187

Acetylcholine, electrically induced release of – from denervated Schwann cells (frog), 431

the effect of contractile activity on fibrillation and extrajunctional acetylcholine-sensitivity in rat muscle maintained in organ culture, 157

Acetylcholine receptors, fluorescent staining of – in vertebrate skeletal muscle, 385

Adenosine triphosphate, tension responses to quick length changes of glycerinated skeletal muscle fibres from the frog and tortoise, 243

Adrenal, the – response to static work, 24*P*

Adrenal gland, analysis of the role of cyclic adenosine 3′,5′-monophosphate in catecholamine release (cat), 465

Amino acids, inhibition of neutral amino acid entry into the brain of the rat *in vivo*, 22*P*

Amylase, the effect of preganglionic cervical sympathectomy on the – content of parotid glands in fasted and fed rats, 56*P*

Anaesthesia, effect of halothane/nitrous oxide – on the behaviour of 'sustained' and 'transient' visual cortical neurones (cat), 20*P*

evidence that nitrous oxide can maintain – after induction with barbiturates (cat), 39*P*

Angiotensin, plasma renin and – II in conscious pregnant ewes and their lambs, 52*P*

Anococcygeus muscle, the effect of excitatory or inhibitory nerve stimulation on the membrane potential of the rat –, 47*P*

Antidiuretic hormone, left atrial receptors and diuresis in the dog, 48*P*

left atrial receptors and the – (dog), 663

Atrial receptors, left – and diuresis in the dog, 48*P*

left – and the antidiuretic hormone, (dog), 663

the response to distension of the pulmonary vein–left atrial junction in dogs with spinal section, 685

Atrial trabeculae, a study of the contracture induced in frog – by a reduction of the bathing sodium concentration, 295

Atropine, effects of vagotomy, –, hexamethonium and adrenaline on the destination in the stomach of liquids sucked by milk-fed lambs and calves, 415

Autonomic block, effects of vagotomy, atropine, hexamethonium and adrenaline on the destination in the stomach of liquids sucked by milk-fed lambs and calves, 415

Bladder (urinary), emptying the bladder by stimulating sacral ventral roots, 15*P*

Blood, a method for rapidly washing the – out of an organ or tissue of the anaesthetized living animal, 11*P*

an electronically controlled syringe drive for giving an injection at a variable rate according to a preset programme, 5*P*

the rapid achievement and maintenance of a steady level of an injected substance in the – plasma, 8*P*

Blood flow, a method for regulating return blood flow in an extra-corporeal circuit, 17*P*

uterine – in sheep (kept on pasture), 51*P*

whole kidney and cortical – in rats on high and low sodium diets, 495

Blood reservoir, capacitance effects and – function in the splanchnic vascular bed during non-hypotensive haemorrhage and blood volume expansion in anaesthetized cats, 279

Blood volume, the effects of pentobarbitone anaesthesia on the volume and composition of the extracellular fluid of dogs, 521

Brain, inhibition of neutral amino acid entry into the brain of the rat *in vivo*, 22*P*

Brattleboro rats, recurrent inhibition of supraoptic neurosecretory cells in homozygous –, 25*P*

Burimamide, the effects of – on gastric acid secretion and gastric mucosal blood flow in the anaesthetized cat, 41*P*

Calcium, calcium-mediated potassium activation in *Helix* neurones, 43*P*
tension responses to quick length changes of glycerinated skeletal muscle fibres from the frog and tortoise, 243
the sensitivity of *Helix aspersa* neurones to injected calcium ions, 259
Capacitance effects, – and blood reservoir function in the splanchnic vascular bed during non-hypotensive haemorrhage and blood volume expansion in anaesthetized cats, 279
Capillary permeability, – to protein as a factor in the control of plasma volume (rat), 39
Carotid body chemoreceptors, the role of the – and carotid sinus baroreceptors in the control of cerebral blood vessels (baboon), 315
Carotid sinus baroreceptors, the role of the carotid body chemoreceptors and – in the control of cerebral blood vessels (baboon), 315
Catecholamine-containing neural systems, electrical self-stimulation in relation to cells of origin of – ascending from the brain stem (rat), 31*P*
Catecholamine secretion, analysis of the role of cyclic adenosine 3′,5′-monophosphate in catecholamine release (cat), 465
Cerebellum, the projection of the posterior knee joint nerve to the cerebellar cortex (cat), 371
Cerebral blood vessels, the role of the carotid body chemoreceptors and carotid sinus baroreceptors in the control of – (baboon), 315
Cold-exposure, a comparison of ear arteries from (*a*) heat- and (*b*) cold-exposed rabbits with respect to noradrenaline uptake and content, 32*P*
Cold receptors, characteristics, specificity and efferent control of frog cutaneous –, 15
Colour vision, the time course of the McCollough effect and its physiological implications, 38*P*
Compliance, the – of contracting skeletal muscle (toad), 477
Contracture, similarities between the potassium contractures and those induced by hypertonic solutions in rat ventricular trabeculae, 28*P*
Cortical cells, recording from single-cells in infero-temporal cortex of the monkey during discrimination performance, 6*P*
Cortical neurones, the effect of visual experience on the development of stimulus specificity by kitten –, 49
Cyclic adenosine monophosphate, analysis of the role of – in catecholamine release (cat), 465

Delayed rectifier, consecutive activation and inactivation of the – in skeletal muscle fibres (frog), 46*P*
Denervated muscles, dynamic properties of denervated fast and slow twitch muscle of the cat, 103
Denervation, electrically induced release of acetylcholine from denervated Schwann cells (frog), 431
Development, reversal of the physiological effects of monocular deprivation in kittens: further evidence for a sensitive period, 195
the effect of visual experience on the – of stimulus specificity by kitten cortical neurones, 49
the properties of motor units in a fast and a slow twitch muscle during post-natal – in the kitten, 75
Diphenylhydantoin, the effect of – on sodium appetite in rats, 53*P*
Diuresis, left atrial receptors and – in the dog, 48*P*
left atrial receptors and the antidiuretic hormone (dog), 663
Dopamine, catecholamine microanalysis and morphology of a giant dopamine-containing neurone, 19*P*
synaptic release of ganglionic –, (rabbit), 635
Duodenal receptors, actions of glucose and potassium chloride on osmoreceptors slowing gastric emptying (man), 183

Efferent control, characteristics, specificity and – of frog cutaneous cold receptors, 15
Endometrium, micro-electrode studies on endometrial cells of rat uterus, 27*P*
Epithelium, the sodium-transporting compartment of the – of frog skin, 555
Extra-corporeal, a method for regulating return blood flow in an – circuit, 17*P*
Extracellular fluid, the effects of pentobarbitone anaesthesia on the volume and composition of the – of dogs, 521
Extracellular fluid volume, the effects of the production of sodium depletion by peritoneal dialysis with 5% glucose on the volume and composition of the extracellular fluid of dogs, 535

Facilitation, an analysis of the role of calcium in – at the frog neuromuscular junction, 1
Fatigue, – in the human external anal sphincter and external urethral sphincter under electrical stimulation of their motor nerve fibres, 55*P*
Fibrillation, the effect of contractile activity on – and extrajunctional acetylcholine-sensitivity in rat muscle maintained in organ culture, 157
Foetal circulation, plasma renin and angiotensin II in conscious pregnant ewes and their lambs, 52*P*
Frog skin, the sodium-transporting compartment of the epithelium of –, 555

γ-Aminobutyric acid, – and inhibition in the septal nuclei of the rat, 625
Gastric acid secretion, the effects of burimamide on – and gastric mucosal blood flow in the anaesthetized cat, 41*P*
Gastric emptying, actions of glucose and potassium chloride on osmoreceptors slowing – (man), 183
Gastric secretion, – in the isolated stomach of the guinea-pig, 1*P*
Giant dopamine neurone, catecholamine microanalysis and morphology of a giant-dopamine-containing neurone, 19*P*
Glycylglycine, effect of – and glycine on jejunal absorption rate of L-histidine in man *in vivo*, 187

Heart, similarities between the potassium contractures and those induced by hypertonic solutions in rat ventricular trabeculae, 28*P*
Heart muscle, a study of the contractures induced in frog atrial trabeculae by a reduction of the bathing sodium concentration, 295
Hippocampus, the hippocampal control of neuronal discharges in the septum of the rat, 607
L-histidine, effect of glycylglycine and glycine on jejunal absorption rate of – in man *in vivo*, 187

Inhibition, γ-aminobutyric acid and – in the septal nuclei of the rat, 625
Inhibitory post-synaptic potential, synaptic release of ganglionic dopamine (rabbit), 635
Insect, octopamine in the – central nervous system: distribution, biosynthesis and possible physiological role, 34*P*
Ionic strength, membrane capacity measurements on frog skeletal muscle in media of low ion content, 573

Joint, the projection of the posterior knee – nerve to the cerebellar cortex (cat), 371

Kidney, whole – and cortical blood flow in rats on high and low sodium diets, 495

Liver, passive K fluxes in isolated and perfused rat –, 44*P*
Lung, ultrastructure of inclusion bodies in Type II cells of –, human and subsimian, 35*P*
Luteinizing hormone, effect of electrical stimulation of the preoptic area on – releasing factor in pituitary stalk blood, 37*P*
Lymph flow, the velocity of – in the canine thoracic duct, 401

McCollough effect, the time course of the – and its physiological implications, 38*P*
Mannitol space, the effects of pentobarbitone anaesthesia on the volume and composition of the extracellular fluid of dogs, 521
Mechanoreceptors, splanchnic slowly adapting – in dogs and sheep, 23*P*
Membrane capacity, – measurements on frog skeletal muscle in media of low ion content, 573
Mesenteric vascular bed, effect of prolactin on the responses of the rat – to noradrenaline and to angiotensin, 43*P*
Micro-electrodes, remote control system for very small – advancers, 13*P*
Micturition, emptying the bladder by stimulating sacral ventral roots, 15*P*
Monocular deprivation, reversal of the physiological effects of – in kittens: further evidence for a sensitive period, 195
Motor cortex, electrical activity of the – associated with voluntary movements in the baboon, 12*P*
Motor units, isometric contractions of – in self reinnervated fast and slow twitch muscles of the cat, 91
post-tetanic effects in – of fast and slow twitch muscles of the cat, 115
the properties of – in a fast and a slow twitch muscle during post-natal development in the kitten, 75
Muscle, membrane capacity measurements on frog skeletal muscle in media of low ion content, 573

Muscle activity, the effect of contractile activity on fibrillation and extra-junctional acetylcholine-sensitivity in rat muscle maintained in organ culture, 157

Muscle spindle deficiency, a dominant hereditary sensory disorder in the mouse with deficiency of muscle spindles: the mutant *Sprawling*, 10*P*

Myometrium, initial ionic currents in guinea-pig –, 50*P*

Nerve fibres, the visualization *in vivo* of neural elements and the microcirculation of rat spinal roots, 18*P*

Neuromuscular junction, a note on the interaction of spontaneous and evoked release at the frog –, 453

an analysis of the role of calcium in facilitation at the frog –, 1

Neurones, the sensitivity of *Helix aspersa* – to injected calcium ions, 259

Nitrous oxide, evidence that – can maintain anaesthesia after induction with barbiturates (cat), 39*P*

Noradrenaline, a comparison of ear arteries from (*a*) heat- and (*b*) cold-exposed rabbits with respect to – uptake and content, 32*P*

regulation of – release (cat), 505

Octopamine, – in the insect central nervous system: distribution, biosynthesis and possible physiological role, 34*P*

Osmoreceptors, actions of glucose and potassium chloride on – slowing gastric emptying (man), 183

Pentobarbitone, the effects of – anaesthesia on the volume and composition of the extracellular fluid of dogs, 521

Peritoneal dialysis, the effects of the production of sodium depletion by – with 5% glucose on the volume and composition of the extracellular fluid of dogs, 535

Phenoxybenzamine, regulation of noradrenaline release (cat), 505

Plasma volume, capillary permeability to protein as a factor in the control of – (rat), 39

Potassium activation, calcium-mediated – in *Helix* neurones, 43*P*

Potassium fluxes, passive K fluxes in isolated and perfused rat liver, 44*P*

Potassium permeability, the sensitivity of *Helix aspersa* neurones to injected calcium ions, 259

Prolactin, effect of – on the responses of the rat mesenteric vascular bed to noradrenaline and to angiotensin, 43*P*

Recurrent inhibition, – of supraoptic neurosecretory cells in homozygous Brattleboro rats, 25*P*

Red cells, potassium: potassium exchange catalysed by the sodium pump in human –, 123

Reinnervation, isometric contractions of motor units in self reinnervated fast and slow twitch muscles of the cat, 91

Renin, plasma – and angiotensin II in conscious pregnant ewes and their lambs, 52*P*

Rhodopsin, the density and photosensitivity of human – in the living retina, 341

Rods, the density and photosensitivity of human rhodopsin in the living retina, 341

Saliva, the effect of preganglionic cervical sympathectomy on the amylase content of parotid glands in fasted and fed rats, 56*P*

Salt depletion, the effects of the production of sodium depletion by peritoneal dialysis with 5% glucose on the volume and composition of the extracellular fluid of dogs, 535

Schwann cells, electrically induced release of acetylcholine from denervated – (frog), 431

Septal nuclei, γ-aminobutyric acid and inhibition in the – of the rat, 625

the hippocampal control of neuronal discharges in the septum of the rat, 607

Skeletal muscle, consecutive activation and inactivation of the delayed rectifier in – fibres (frog), 46*P*

dynamic properties of denervated fast and slow twitch muscles of the cat, 103

fluorescent staining of acetylcholine receptors in vertebrate –, 385

isometric contractions of motor units in self reinnervated fast and slow twitch muscles of the cat, 91

post-tetanic effects in motor units of fast and slow twitch muscles of the cat, 115

tension responses to quick length changes of glycerinated – fibres from the frog and tortoise, 243

the compliance of contracting – (toad), 477

the properties of motor units in a fast and a slow twitch muscle during post-natal development in the kitten, 75

Sodium, a study of the contractures induced in frog atrial trabeculae by a reduction of the bathing – concentration, 295

Sodium appetite, the effect of diphenylhydantoin on the – in rats, 53*P*

Sodium pump, potassium: potassium exchange catalysed by the – in human red cells, 123

Sodium transport, the sodium-transporting compartment of the epithelium of frog skin, 555

Sphincters, fatigue in the human external anal sphincter and external urethral sphincter under electrical stimulation of their motor nerve fibres, 55*P*

Spinal section, the response to distension of the pulmonary vein–left atrial junctions in dogs with –, 685

Splanchnic nerve, splanchnic slowly adapting mechanoreceptors in dogs and sheep, 23*P*

Splanchnic vascular bed, capacitance effects and blood reservoir function in the – non-hypotensive haemorrhage and blood volume expansion in anaesthetized cats, 279

Spleen, regulation of noradrenaline release (cat), 505

Stomach, effects of vagotomy, atropine, hexamethonium and adrenaline on the destination in the stomach of liquids sucked by milk-fed lambs and calves, 415

Submandibular glands, movement of horseradish peroxidase in – of rabbits after arterial injection, 3*P*

Sympathetic ganglia, synaptic release of ganglionic dopamine (rabbit), 635

the formation of synapses in mammalian – reinnervated with preganglionic or somatic nerves, 217

Sympathectomy, the effect of preganglionic cervical – on the amylase content of parotid glands in fasted and fed rats, 56*P*

Synapse formation, the formation of synapses in mammalian sympathetic ganglia reinnervated with preganglionic or somatic nerves, 217

Thoracic duct, the velocity of lymph flow in the canine –, 401

Transmitter release, a note on the interaction of spontaneous and evoked release at the frog neuromuscular junction, 453

an analysis of the role of calcium in facilitation at the frog neuromuscular junction, 1

Uterus, micro-electrode studies on endometrial cells of rat –, 27*P*

uterine blood flow in sheep (kept on pasture), 51*P*

Vision, the density and photosensitivity of human rhodopsin in the living retina, 341

the effect of visual experience on the development of stimulus specificity by kitten cortical neurones, 49

Visual cortex, reversal of the physiological effects of monocular deprivation in kittens: further evidence for a sensitive period, 195

Visual cortical neurones, effect of halothane/nitrous oxide anaesthesia on the behaviour of 'sustained' and 'transient' – (cat), 20*P*

Voluntary movement, electrical activity of the motor cortex associated with – in the baboon, 12*P*

Work, the adrenal response to static –, 24*P*

THE JOURNAL OF PHYSIOLOGY

EDITED FOR

THE PHYSIOLOGICAL SOCIETY

BY

H. B. BARLOW T. J. BISCOE J. BLIGH
J. R. BRONK P. C. CALDWELL W. K. CHANDLER
D. COLQUHOUN J. DIAMOND R. H. T. EDWARDS
R. HAINSWORTH L. L. IVERSEN J. J. B. JACK
D. H. JENKINSON B. R. JEWELL J. F. LAMB
J. LEE A. R. MARTIN C. RASHBASS
P. RICHARDSON T. A. SEARS S. THOMAS
P. D. WALL J. G. WIDDICOMBE G. WISEMAN
P. F. BAKER (*Secretary*) D. K. HILL (*Chairman*)

Volume 238

1974

CAMBRIDGE UNIVERSITY PRESS

PUBLISHED BY
THE SYNDICS OF THE CAMBRIDGE UNIVERSITY PRESS
Bentley House, 200 Euston Road, London, NW1 2DB
American Branch: 32 East 57th Street, New York, N.Y. 10022

© The Physiological Society 1974

Printed in Great Britain at the University Printing House, Cambridge

CONTENTS OF VOLUME 238

No. 1 *April* 1974

PAGE

Changes of extracellular potassium concentration induced by neuronal activity in the spinal cord of the cat. By N. Kříž, Eva Syková, E. Ujec and L. Vyklický 1

Cardiovascular alterations associated with bursts of panting in the exercising dog. By R. A. L. Dampney 17

Electrical excitability in the egg cell membrane of the tunicate. By Shun-Ichi Miyazaki, Kunitaro Takashi and Kazuko Tsuda 37

Analysis of non-linearity observed in the current-voltage relation of the tunicate embryo. By Shun-Ichi Miyazaki, Kunitaro Takahashi, Kazuko Tsuda and Mitsunobu Yoshii 55

The formation of synapses in regenerating mammalian striated muscle. By M. R. Bennett, T. Florin and R. Woog 79

A statistical analysis of the release of acetylcholine at newly formed synapses in striated muscle. By M. R. Bennett and T. Florin 93

Mechanism of anion permeation through the muscle fibre membrane of an elasmobranch fish, *Taeniura lymma*. By Susumu Hagiwara and Kunitaro Takahashi 109

A nervous mechanism for descending inhibition in guinea-pig small intestine. By G. D. S. Hirst and H. C. McKirdy. . . . 129

Pancreatic acinar cells: membrane potential and resistance change evoked by acetylcholine. By A. Nishiyama and O. H. Petersen 145

Intracellular pH of snail neurones measured with a new pH-sensitive glass micro-electrode. By R. C. Thomas 159

Complementary lowering of the behavioural and physiological thermoregulatory set-points by tetradotoxin and saxitoxin in the cat. By Wesley G. Clark and J. M. Lipton. 181

An uptake mechanism for L-noradrenaline in the cat spleen, associated with the nerves but distinct from uptake. By A. G. H. Blakeley, G. Powis and R. J. Summers 193

No. 2 *April* 1974

PAGE

The compensation of post-traumatic oedema in the rabbit at different ages. By R. A. LITTLE 207

The accumulative properties of facilitation at crayfish neuromuscular synapses. By T. M. LINDER 223

An estimate of sodium/potassium pump activity and the number of pump sites in the smooth muscle of the guinea-pig taenia coli, using [^{3}H] ouabain. By ALISON F. BRADING and J. H. WIDDICOMBE 235

Influence of temperature on retinal ganglion cell response and E.R.G. of goldfish. By N. A. M. SCHELLART, H. SPEKREIJSE and T. J. T. P. VAN DEN BERG 251

Relationships between motor nerve conduction velocities and motor unit contraction characteristics in a slow twitch muscle of the cat. By J. BAGUST 269

The regulation of cellular volume in liver slices. By A. D. C. MACKNIGHT, JENNIFER P. PILGRIM and BRIDGET A. ROBINSON . 279

The cyclic motility of the omasum and its control in sheep. By L. BUENO and Y. RUCKEBUSCH 295

Studies of radiocalcium efflux in single barnacle muscle fibres: effects of procaine and external divalent cations. By STEPHEN S. CHEN 313

Ion fluxes through the sodium channels of garfish olfactory nerve membranes. By RICHARD HENDERSON and GARY STRICHARTZ . 329

Polysensory interactions in the cuneate nucleus. By S. F. ATWEH, N. R. BANNA, S. J. JABBUR and G. F. TO'MEY 343

Different properties of synapses between a single sensory neurone and two different motor cells in the leech C.N.S. By K. J. MULLER and J. G. NICHOLLS 357

The development of a blood-brain barrier mechanism in foetal sheep. By C. A. N. EVANS, J. M. REYNOLDS, M. L. REYNOLDS, N. R. SAUNDERS and M. B. SEGAL 371

Responses in the rat thalamus to whisker movements produced by motor nerve stimulation. By A. W. S. BROWN and PHIL M. E. WAITE 387

The importance of central adrenergic neurones in renal hypertension in rabbits. By J. P. CHALMERS, C. T. DOLLERY, P. J. LEWIS and J. L. REID 403

PAGE

Effects of rapid cooling on the electrical properties of the smooth muscle of the guinea-pig urinary bladder. By S. KURIHARA, H. KURIYAMA and T. MAGARIBUCHI 413

The influence of centrally applied noradrenaline on shivering and body temperature in the pigeon. By R. HISSA and W. RAUTENBERG 427

Energetics of relaxation in frog muscle. By NANCY A. CURTIN and ROGER C. WOLEDGE 437

No. 3 *May* 1974

The ultrastructure of the carotid body in chronically hypoxic rabbits. By M. MØLLER, K. MØLLGARD and S. C. SØRENSEN . . 447

The effect of the performance of work on total energy output and metabolism during muscular contraction. By NANCY A. CURTIN, CLAUDE GILBERT, K. M. KRETZSCHMAR and D. R. WILKIE . . 455

Light and X-ray diffraction studies on chick skeletal muscle under controlled physiological conditions. By ICHIRO MATSUBARA . . 473

Morphine hyperglycaemia. By W. FELDBERG and K. P. GUPTA . 487

Motor units in cat soleus muscle: physiological, histochemical and morphological characteristics. By R. E. BURKE, D. N. LEVINE, M. SALCMAN and P. TSAIRIS 503

Cell structure and function in the visual cortex of the cat. By J. P. KELLY and D. C. VAN ESSEN 515

The autonomic innervation of the nasal blood vessels of the cat. By R. ECCLES and H. WILSON 549

Temperature regulation during fever: change of set point or change of gain? a tentative answer from a behavioural study in man. By M. CABANAC and B. MASSONNET 561

Identification of cone mechanisms in graded responses of foveal striate cortex. By PETER GOURAS and PIETER PADMOS . . . 569

Opponent-colour cells in different layers of foveal striate cortex. By PETER GOURAS. 583

Vestibulo-ocular and optokinetic reactions to rotation and their interaction in the rabbit. By E. A. BAARSMA and H. COLLEWIJN . 603

PAGE

New techniques for calibrating the Lloyd–Haldane apparatus. By R. S. CORMACK and J. R. HEATH 627

Acetylcholine synthesis from recaptured choline by a sympathetic ganglion. By B. COLLIER and H. S. KATZ 639

Inhibition of thermoregulatory non-shivering thermogenesis by trauma in cold-acclimated rats. By H. B. STONER 657

PROCEEDINGS OF THE PHYSIOLOGICAL SOCIETY

14–15 *December* 1973

DEMONSTRATIONS

PAGE

Baylis, Christine & Summerill, R. A. Collection of blood and urine from conscious dogs (T) 1*P*

O'Connor, W. J. Experiments on drinking by dogs (T) 1*P*

Bolton, N., Chadwick, A. & Scanes, C. G. Fractionation and assay of chicken prolactin 1*P*

Scanes, C. G. An *in vitro* method for investigating the factors controlling secretion of luteinizing hormone and thyroid stimulating hormone from chicken anterior pituitary glands (T) 2*P*

Pickard, D. W., Schaubhut, C. F. & Stevens, C. E. Motility studies of the rabbit's large intestine 2*P*

Blair, T. & Forbes, J. M. The use of closed-circuit respiration chambers in studying the effects of hormones on energy partitioning in small ruminants (T) . 2*P*

Forbes, J. M. Stereotaxic placement of cannula guides in the brain of sheep . 2*P*

Bates, R. F. L. Studies of calcitonin secretion using thyroid slices perfused *in vitro* (T) 3*P*

Fox, J. & Swaminathan, R. The use of a Thiry Vella loop of jejunum to measure calcium absorption rate in conscious pigs 3*P*

Floyd, W. F. & Sandover, J. Apparatus for the study of the effects of impulsive forces on man 4*P*

Jones, P. R. M., Lockett, Jennifer A., Pearson, Jean & Wyness, J. The relationship to age of indices of leg muscle and estimated fat-free mass in adult females . 6*P*

Floyd, K. & Morrison, J. F. B. Structures in the mesentery of the cat which stain with methylene blue (T) 7*P*

Floyd, K., Hardstaff, Verity E. & Morrison, J. F. B. A preparation for the study of intra-abdominal sensory-receptors 7*P*

Dobie, T. G. Demonstration of a technique for the treatment of intractable motion sickness 8*P*

Linden, R. J., Malpus, C. M., Saunders, D. A. & Snow, H. M. Correlation of a cardiovascular reflex response with the auditory evoked potential in the dog during changes of depths of anaesthesia 9*P*

Kappagoda, C. T., Linden, R. J., Snow, H. M. & Whitaker, Elaine M. Effect of ablation of the pituitary gland on the diuresis from atrial receptors . . 11*P*

Hainsworth, R., Karim, F. & Stoker, J. B. Venous and arterial responses in a vascularly isolated dog hind limb 12*P*

Hainsworth, R. & Karim, F. A method for measurement of changes in abdominal vascular capacity 13*P*

Harry, J. D., Knapp, M. F. & Linden, R. J. An attempt to estimate the sympathetic activity to the heart of man in his home environment . . . 15*P*

Kidd, C., Linden, R. J. & Scott, Evelyn M. Single unit activity in renal nerves and its modification by changes in activity in left atrial receptors and baroreceptors 16*P*

Kappagoda, C. T., Keith, I. C., Kidd, C., Linden, R. J. & Snow, H. M. Modifications of neuronal activity in the dog medulla by stimulation of left atrial receptors 17*P*

PAGE

Floyd, K., Linden, R. J. & Saunders, D. A. The morphological variation of nervous structures in the atrial endocardium of the dog 19P

Kidd, C., Malpus, C. M. & Penna, P. E. An isolated, autoperfused pouch of the subclavian–brachiocephalic baroreceptor area 19P

Malpus, C. M. On-line computer facility servicing three laboratories . . 20P

Kappagoda, C. T. Linden, R. J. & Stoker, J. B. Demonstration of a technique for the continuous determination of oxygen consumption 22P

Hervey, G. R. The use of small departmental computers in teaching and research 22P

Cotes, J. E., Hall, A. M., Johnson, G. R., Jones, P. R. M. & Knibbs, A. V. Decline with age of cardiac frequency during submaximal exercise in healthy women 24P

Fourman, Julia, Haase, P., Hollins, J., Menys, V. Newman, R. & Woo Sam, P. Calcification of the kidney: an experimental study in laboratory rats and gerbils (T) 25P

Fowler, T. J., Gilliatt, R. W., Ochoa, J. & Rudge, P. The anatomical lesion produced by acute nerve compression (T) 25P

COMMUNICATIONS

Bishop, P. O., Goodwin, A. W. & Henry, G. H. Direction selective sub-regions in striate simple cell receptive fields 25P

Beleslin, D. B. & Samardžić, Ranka. Effect of thyroxine on the body temperature after its intraventricular injection into conscious cats 27P

Allen, D. G., Jewell, B. R. & Wood, E. H. The rested state contraction and action potential of cat papillary muscle 29P

Galt, Jean M., Ludgate, C. M., Pettigrew, R. T., Scratcherd, T. & Smith, A. N. Circulatory and electrolyte changes during hyperthermia to 42° C . . 30P

Gilliatt, R. W., McDonald, W. I. & Rudge, P. The site of conduction block in peripheral nerves compressed by a pneumatic tourniquet 31P

Law, R. O. [^{14}C]Carboxyl inulin distribution and solute exchanges in incubated slices of rat renal medulla 32P

Epstein, N., Fitzsimons, J. T. & Johnson, A. K. Peptide antagonists of the renin-angiotensin system and the elucidation of the receptors for angiotensin-induced drinking 34P

Shakhnovich, A. R. & Thomas, J. G. Micro-tremor of the eyes as an index of motor unit activity, and of the functional state of the brain stem . . . 36P

Gillingham, F. J., Walsh, E. G. & Wright, G. W. Resonance at the wrist in Parkinsonism – changes induced by stereotaxic surgery 37P

Packard, A. Chromatophore fields in the skin of the octopus 38P

Flitney, F. W. Light-scattering associated with the short-range elastic component of resting frog's muscle 40P

Brown, M. C. & Butler, R. G. Evidence for innervation of muscle spindle intrafusal fibres by branches of α motoneurones following nerve injury . . . 41P

Frith, D. A. & Snart, R. S. Effect of prostaglandins on water transport across the isolated toad bladder 43P

Catton, W. T. & Morrison, J. D. Effects of GABA and inhibitory antagonists on discharges of frog retinal ganglion cells 44P

Rutishauser, Sigrid C. B. & Stone, S. L. Aspects of bile secretion in the rabbit . 46P

Brown, Margaret D., Cotter, Mary, Hudlicka, Olga, Smith, Margaret E. & Vrbová, Gerta. The effect of long-term stimulation of fast muscles on their ability to withstand fatigue 47P

PAGE

Carnie, Norah, Mukhtar, A. I., Pollock, C. G., Taylor, D. E. M. & Whamond, Joan S. Impedance spectra change across the aortic valve at different heart rates in the sheep 48*P*

Biscoe, T. J., Headley, P. M. & Lodge, D. The pharmacology of the rat Renshaw cell recurrent collateral pathway 49*P*

Brown, Hilary F. & Noble, Susan J. Effects of adrenaline on membrane currents underlying pace maker activity in frog atrial muscle 51*P*

Paintal, A. S. Fluid pump of type J receptors of the cat 53*P*

Jennett, Sheila, Russell, T. & Warnock, Kathleen A. The duration of inspiration during changing states of ventilation in man 54*P*

Nishiyama, A. & Petersen, O. H. Effect of calcium on the potential and resistance change of the pancreatic acinar cell membrane during the action of acetylcholine 55*P*

Bennett, T., Kemp, P. A. & Wilson, M. F. Serum dopamine-beta-hydroxylase activity: exercise-induced elevation in human subjects 57*P*

Ernst, W. & Jagger, W. S. Photoresponses from the retinal receptor layer of the frog 58*P*

Dobie, T. G. An evaluation of cupulometry as a predictor of susceptibility to motion sickness 60*P*

Keith, I. C., Kidd, C., Malpus, C. M. & Penna, P. E. Reduction of baroreceptor impulse activity by sympathetic nerve stimulation 61*P*

Floyd, K. & Morrison, J. F. B. Interactions between afferent impulses within a peripheral receptive field 62*P*

Summerill, R. A. The effects of a meat meal on glomerular filtration rate and urea excretion in the conscious dog 64*P*

Baylis, Christine & O'Connor, W. J. Renal excretion of K^+ by the conscious dog 65*P*

Evans, E. F. The effects of hypoxia on the tuning of single cochlear nerve fibres 65*P*

Broughton Pipkin, Fiona, Lumbers, Eugenie R. & Mott, Joan C. Effects of hypoxia on maternal and foetal renin and angiotensin II in sheep 67*P*

Chijikwa, J. B. & Davison, J. S. The action of gastrin-like polypeptides on the peristaltic reflex in guinea-pig intestine 68*P*

Andrew, B. L. & Part, N. J. Properties of dynamic β fibres innervating rat caudal segmental muscles. 70*P*

Fry, D. J. The effect of ouabain, low temperaure and exposure to Li solutions on cation fluxes in amphibian oocytes 71*P*

Blair, E. L., Venables, C. W. & Wilkinson, J. Gastric relaxation in the dog in response to feeding 72*P*

Barrowman, J. A. & Mayston, P. D. The trophic influence of cholecystokinin on the rat pancreas 73*P*

Swaminathan, R. The inhibitory effect of pentagastrin on intestinal calcium absorption 75*P*

Bates, R. F. L., Care, A. D. & Gonda, Daniela. Stimulation of calcitonin secretion by strontium 76*P*

Bolton, N., Chadwick, A. & Scanes, C. G. The effect of thyrotrophin releasing factor on the secretion of thyroid stimulating hormone and prolactin from the chicken anterior pituitary gland 78*P*

Eggenton, Jacqueline, Flower, R. J., Hardcastle, P. T., Sanford, P. A. & Smyth, D. H. Prostaglandins and intestinal function 79*P*

Debnam, E. S. & Levin, R. J. Dietary sugars and the maximum absorptive capacity of the small intestine; further evidence for multiple hexose transfer mechanisms 81*P*

AUTHOR INDEX

(D) denotes Demonstration (T) Title only

PAGE

ALLEN, D. G., JEWELL, B. R. & WOOD, E. H. The rested state contraction and action potential of cat papillary muscle 29*P*

ANDREW, B. L. and PART, N. J. Properties of dynamic β fibres innervating rat caudal segmental muscles 70*P*

ATWEH, S. F., BANNA, N. R., JABBUR, S. J. and TO'MEY, G. F. Polysensory interactions in the cuneate nucleus 343

BAARSMA, E. A. and COLEWIJN, H. Vestibulo-ocular and optokinetic reactions to rotation and their interaction in the rabbit 603

BAGUST, J. Relationships between motor nerve conduction velocities and motor unit contraction characteristics in a slow twitch muscle of the cat. . . . 269

BANNA, N. R., ATWEH, S. F., JABBUR, S. J. and TO'MEY, G. F. Polysensory interactions in the cuneate nucleus 343

BARROWMAN, J. A. and MAYSTON, P. D. The trophic influence of cholecystokinin on the rat pancreas 73*P*

BATES, R. F. L. Studies of calcitonin secretion using thyroid slices perfused *in vitro* (T) (D) 3*P*

BATES, R. F. L., CARE, A. D. and GONDA, DANIELA. Stimulation of calcitonin secretion by strontium 76*P*

BAYLIS, CHRISTINE and O'CONNOR, W. J. Renal excretion of K^+ by the conscious dog 65*P*

BAYLIS, CHRISTINE and SUMMERILL, R. A. Collection of blood and urine from conscious dogs (T) (D) 1*P*

BELESLIN, D. B. and SAMARDŽIĆ, RANKA. Effect of thyroxine on the body temperature after its intraventricular injection into conscious cats 27*P*

BENNETT, M. R., FLORIN, T. and WOOG, R. The formation of synapses in regenerating mammalian striated muscle 79

BENNETT, M. R. and FLORIN, T. A statistical analysis of the release of acetylcholine at newly formed synapses in striated muscle 93

BENNETT, T., KEMP, P. A. and WILSON, M. F. Serum dopamine-beta-hydroxylase activity: exercise-induced elevation in human subjects 57*P*

BISCOE, T. J., HEADLEY, P. M. and LODGE, D. The pharmacology of the rat Renshaw cell recurrent collateral pathway 49*P*

BISHOP, P. O., GOODWIN, A. W. and HENRY, G. H. Direction selective sub-regions in striate simple cell receptive fields 25*P*

BLAIR, E. L., VENABLES, C. W. and WILKINSON, J. Gastric relaxation in the dog in response to feeding. 72*P*

BLAIR, T. and FORBES, J. M. The use of closed-circuit respiration chambers in studying the effects of hormones on energy partitioning in small ruminants (T) (D) 2*P*

BLAKELEY, A. G. H., POWIS, G. and SUMMERS, R. J. An uptake mechanism for L-noradrenaline in the cat spleen, associated with the nerves but distinct from uptake$_1$ 193

BOLTON, N., CHADWICK, A. and SCANES, C. G. Fractionation and assay of chicken prolactin (D) 1*P*

PAGE

BOLTON, N., CHADWICK, A. and SCANES, C. G. The effect of thyrotrophin releasing factor on the secretion of thyroid stimulating hormone and prolactin from the chicken anterior pituitary gland 78*P*

BRADING, ALISON F. and WIDDICOMBE, J. H. An estimate of sodium/potassium pump activity and the number of pump sites in the smooth muscle of the guinea-pig taenia coli, using ^{3}[H] ouabain 235

BROUGHTON PIPKIN, FIONA, LUMBERS, EUGENIE R. and MOTT, JOAN C. Effects of hypoxia on maternal and foetal renin and angiotensin II in sheep . . . 67*P*

BROWN, A. W. S. and WAITE, PHIL M. E. Responses in the rat thalamus to whisker movements produced by motor nerve stimulation 387

BROWN, HILARY F. and NOBLE, SUSAN J. Effects of adrenaline on membrane currents underlying pace maker activity in frog atrial muscle 51*P*

BROWN, M. C. and BUTLER, R. G. Evidence for innervation of muscle spindle intrafusal fibres by branches of α motoneurones following nerve injury . . . 41*P*

BROWN, MARGARET D., COTTER, MARY, HUDLICKA, OLGA, SMITH, MARGARET, E. and VRBOVÁ, GERTA. The effect of long-term stimulation of fast muscles on their ability to withstand fatigue 47*P*

BUENO, L. and RUCKEBUSCH, Y. The cyclic motility of the omasum and its control in sheep 295

BURKE, R. E., LEVINE, D. N., SALCMAN, M. and TSAIRIS, P. Motor units in cat soleus muscle: physiological, histochemical and morphological characteristics 503

BUTLER, R. G. and BROWN, M. C. Evidence for innervation of muscle spindle intrafusal fibres by branches of α motoneurones following nerve injury . . 41*P*

CABANAC, M. and MASSONNET, B. Temperature regulation during fever: change of set point or change of gain? a tentative answer from a behavioural study in man 561

CARE, A. D., BATES, R. F. L. and GONDA, DANIELA. Stimulation of calcitonin secretion by strontium 76*P*

CARNIE, NORAH, MUKHTAR, A. I., POLLOCK, C. G., TAYLOR, D. E. M. and WHAMOND, JOAN S. Impedance spectra change across the aortic valve at different heart rates in the sheep 48*P*

CATTON, W. T. and MORRISON, J. D. Effects of GABA and inhibitory antagonists on discharges of frog retinal ganglion cells 44*P*

CHADWICK, A., BOLTON, N. and SCANES, C. G. Fractionation and assay of chicken prolactin (D) 1*P*

CHADWICK, A., BOLTON, N. and SCANES, C. G. The effect of thyrotrophin releasing factor on the secretion of thyroid stimulating hormone and prolactin from the chicken anterior pituitary gland 78*P*

CHALMERS, J. P., DOLLERY, C. T., LEWIS, P. J. and REID, J. L. The importance of central adrenergic neurones in renal hypertension in rabbits . . . 403

CHEN, STEPHEN S. Studies on radiocalcium efflux in single barnacle muscle fibres: effects of procaine and external divalent cations 313

CHIJIKWA, J. B. and DAVISON, J. S. The action of gastrin-like polypeptides on the persistaltic reflex in guinea-pig intestine. 68*P*

CLARK, WESLEY G. and LIPTON, J. M. Complementary lowering of the behavioural and physiological thermoregulatory set-points by tetrodotoxin and saxitoxin in the cat 81

COLLEWIJN, H. and BAARSMA, E. A. Vestibulo-ocular and optokinetic reactions to rotation and their interaction in the rabbit 603

COLLIER, B. and KATZ, H. S. Acetylcholine synthesis from recaptured choline by a sympathetic ganglion 639

PAGE

CORMACK, R. S. and HEATH, J. R. New techniques for calibrating the Lloyd-Haldane apparatus 627

COTES, J. E., HALL, A. M., JOHNSON, G. R., JONES, P. R. M. and KNIBBS, A. V. Decline with age of cardiac frequency during submaximal exercise in healthy women (D) 24P

COTTER, MARY, BROWN, MARGARET D., HUDLICKA, OLGA, SMITH, MARGARET E. and VRBOVÁ, GERTA. The effect of long-term stimulation of fast muscles on their ability to withstand fatigue 47P

CURTIN, NANCY A., GILBERT, CLAUDE, KRETZSCHMAR, K. M. and WILKIE, D. R. The effect of the performance of work on total energy output and metabolism during muscular contraction 455

CURTIN, NANCY A. and WOLEDGE, ROGER C. Energetics of relaxation in frog muscle 437

DAMPNEY, R. A. L. Cardiovascular alterations associated with bursts of panting in the exercising dog 17

DAVISON, J. S. and CHIJIKWA, J. B. The action of gastrin-like polypeptides on the peristaltic reflex in guinea-pig intestine 68P

DEBNAM, E. S. and LEVIN, R. J. Dietary sugars and the maximum absorptive capacity of the small intestine; further evidence for multiple hexose transfer mechanisms 81P

DOBIE, T. G. Demonstration of a technique for the treatment of intractable motion sickness (D) 8P

DOBIE, T. G. An evaluation of cupulometry as a predictor of susceptibility to motion sickness 60P

DOLLERY, C. T., CHALMERS, J. P., LEWIS, P. J. and REID, J. L. The importance of central adrenergic neurones in renal hypertension in rabbits 403

ECCLES, R. and WILSON, H. The autonomic innervation of the nasal blood vessels of the cat 549

EGGENTON, JACQUELINE, FLOWER, R. J., HARDCASTLE, P. T., SANFORD, P. A. and SMYTH, D. H. Prostaglandins and intestinal function 79P

EPSTEIN, N., FITZSIMONS, J. T. and JOHNSON, A. K. Peptide antagonists of the renin-angiotensin system and the elucidation of the receptors for angiotensin-induced drinking 34P

ERNST, W. and JAGGER, W. S. Photoresponses from the retinal receptor layer of the frog 58P

EVANS, C. A. N., REYNOLDS, J. M., REYNOLDS, M. L., SAUNDERS, N. R. and SEGAL, M. B. The development of a blood-brain barrier mechanism in foetal sheep 371

EVANS, E. F. The effects of hypoxia on the tuning of single cochlear nerve fibres. 65P

FELDBERG, W. and GUPTA, K. P. Morphine hyperglycaemia. 487

FITZSIMONS, J. T., EPSTEIN, N. and JOHNSON, A. K. Peptide antagonists of the renin-angiotensin system and the elucidation of the receptors for angiotensin-induced drinking 34P

FLITNEY, F. W. Light-scattering associated with the short-range elastic component of resting frog's muscle 40P

FLORIN, T. and BENNETT, M. R. A statistical analysis of the release of acetylcholine at newly formed synapses in striated muscle 93

FLORIN, T., BENNETT, M. R. and WOOG, R. The formation of synapses in regenerating mammalian striated muscle 79

FLOWER, R. J., EGGENTON, JACQUELINE, HARDCASTLE, P. T., SANFORD, P. A. and SMYTH, D. H. Prostaglandins and intestinal function 79P

PAGE

FLOYD, K., HARDSTAFF, VERITY E. and MORRISON, J. F. B. A preparation for the study of intra-abdominal sensory-receptors (D) 7*P*

FLOYD, K., LINDEN, R. J. and SAUNDERS, D. A. The morphological variation of nervous structures in the atrial endocardium of the dog (D) 19*P*

FLOYD, K. and MORRISON, J. F. B. Structures in the mesentery of the cat which stain with methylene blue (T) (D) 7*P*

FLOYD, K. and MORRISON, J. F. B. Interactions between afferent impulses within a peripheral receptive field 62*P*

FLOYD, W. F. and SANDOVER, J. Apparatus for the study of the effects of impulsive forces on man (D) 4*P*

FORBES, J. M. Stereotaxic placement of cannula guides in the brain of sheep (D). 2*P*

FORBES, J. M. and BLAIR, T. The use of closed-circuit respiration chambers in studying the effects of hormones on energy partitioning in small ruminants (D) 2*P*

FOURMAN, JULIA, HAASE, P., HOLLINS, J., MENYS, V., NEWMAN, R. and WOO SAM, P. Calcification of the kidney: an experimental study in laboratory rats and gerbils (T) (D) 25*P*

FOWLER, T. J., GILLIATT, R. W., OCHOA, J. and RUDGE, P. The anatomical lesion produced by acute nerve compression (T) (D) 25*P*

FOX, J. and SWAMINATHAN, R. The use of a Thiry Vella loop of jejunum to measure calcium absorption rate in conscious pigs (D). 3*P*

FRITH, D. A. and SNART, R. S. Effect of prostaglandins on water transport across the isolated toad bladder 43*P*

FRY, D. J. The effect of ouabain, low temperature and exposure to Li solutions on cation fluxes in amphibian oocytes. 71*P*

GALT, JEAN M., LUDGATE, C. M., PETTIGREW, R. T., SCRATCHERD, T. and SMITH, A. N. Circulatory and electrolyte changes during hyperthermia to 42° C . 30*P*

GILBERT, CLAUDE, CURTIN, NANCY A., KRETZSCHMAR, K. M. and WILKIE, D. R. The effect of the performance of work on total energy output and metabolism during muscular contraction 455

GILLIATT, R. W., FOWLER, T. J., OCHOA, J. and RUDGE, P. The anatomical lesion produced by acute nerve compression (D) (T) 25*P*

GILLIATT, R. W., McDONALD, W. I. and RUDGE, P. The site of conduction block in peripheral nerves compressed by a pneumatic tourniquet 31*P*

GILLINGHAM, F. J., WALSH, E. G. and WRIGHT, G. W. Resonance at the wrist in Parkinsonism-changes induced by stereotaxic surgery 37*P*

GONDA, DANIELA, BATES, R. F. L. and CARE, A. D. Stimulation of calcitonin secretion by strontium 76*P*

GOODWIN, A. W., BISHOP, P. O. and HENRY, G. H. Direction selective subregions in striate simple cell receptive fields. 25*P*

GOURAS, PETER. Opponent-colour cells in different layers of foveal striate cortex . 583

GOURAS, PETER and PADMOS, PIETER. Identification of cone mechanisms in graded responses of foveal striate cortex. 569

GUPTA, K. P. and FELDBERG, W. Morphine hyperglycaemia. 487

HAASE, P., FOURMAN, JULIA, HOLLINS, J., MENYS, V., NEWMAN, R. and WOO SAY, P. Calcification of the kidney: an experimental study in laboratory rats and gerbils (D) (T) 25*P*

HAGIWARA, SUSUMU and TAKAHASHI, KUNITARO. Mechanism of anion permeation through the muscle fibre membrane of an elasmobranch fish, *Taeniura lymma* 109

HAINSWORTH, R. and KARIM, F. A. method for measurement of changes in abdominal vascular capacity (D) 13*P*

PAGE

HAINSWORTH, R., KARIM, F. and STOKER, J. B. Venous and arterial responses in a vascularly isolated dog hind limb (D) 12P

HALL, A. M., COTES, J. E., JOHNSON, G. R., JONES, P. R. M. and KNIBBS, A. V. Decline with age of cardiac frequency during submaximal exercise in healthy women (D) 24P

HARDCASTLE, P. T., EGGENTON, JACQUELINE, FLOWER, R. J., SANFORD, P. A. and SMYTH, D. H. Prostaglandins and intestinal function 79P

HARDSTAFF, VERITY E., FLOYD, K. and MORRISON, J. F. B. A preparation for the study of intra-abdominal sensory-receptors (D) 7P

HARRY, J. D., KNAPP, M. F. and LINDEN, R. J. An attempt to estimate the sympathetic activity to the heart of man in his home environment (D) . . 15P

HEADLEY, P. M., BISCOE, T. J. and LODGE, D. The pharmacology of the rat Renshaw cell recurrent collateral pathway 49P

HEATH, J. R. and CORMACK, R. S. New techniques for calibrating the Lloyd–Haldane apparatus. 627

HENDERSON, RICHARD and STRICHARTZ, GARY. Ion fluxes through the sodium channels of garfish olfactory nerve membranes 329

HENRY, G. H., BISHOP, P. O. and GOODWIN, A. W. Direction selective subregions in striate simple cell receptive fields 25P

HERVEY, G. R. The use of small departmental computers in teaching and research (D) 22P

HIRST, G. D. S. and MCKIRDY, H. C. A nervous mechanism for descending inhibition in guinea-pig small intestine 129

HISSA, R. and RAUTENBERG, W. The influence of centrally applied noradrenaline on shivering and body temperature in the pigeon 427

HOLLINS, J., FOURMAN, JULIA, HAASE, P., MENYS, V., NEWMAN, R. and WOO SAM, P. Calcification of the kidney: an experimental study in laboratory rats and gerbils (D) (T). 25P

HUDLICKA, OLGA, BROWN, MARGARET D., COTTER, MARY, SMITH, MARGARET E. and VRBOVÁ, GERTA. The effect of long-term stimulation of fast muscles on their ability to withstand fatigue 47P

JABBUR, S. J., ATWEH, S. F., BANNA, N. R. and TO'MEY, G. F. Polysensory interactions in the cuneate nucleus 343

JAGGER, W. S. and ERNST, W. Photoresponses from the retinal receptor layer of the frog 58P

JENNETT, SHEILA, RUSSELL, T. and WARNOCK, KATHLEEN A. The duration of inspiration during changing states of ventilation in man 54P

JEWELL, B. R., ALLEN, D. G. and WOOD, E. H. The rested state contraction and action potential of cat papillary muscle 29P

JOHNSON, A. K., EPSTEIN, N. and FITZSIMONS, J. T. Peptide antagonists of the renin angiotensin system and the elucidation of the receptors for angiotensin-induced drinking 34P

JOHNSON, G. R., COTES, J. E., HALL, A. M., JONES, P. R. M. and KNIBBS, A. V. Decline with age of cardiac frequency during submaximal exercise in healthy women (D) 24P

JONES, P. R. M., COTES, J. E., HALL, A. M., JOHNSON, G. R. and KNIBBS, A. V. Decline with age of cardiac frequency during submaximal exercise in healthy women (D) 24P

JONES, P. R. M., LOCKETT, JENNIFER, A., PEARSON, JEAN and WYNESS, J. The relationship to age of indices of leg muscle and estimated fat-free mass in adult females (D) 6P

PAGE

KAPPAGODA, C. T., KEITH, I. C., KIDD, C., LINDEN, R. J. and SNOW, H. M. Modifications of neuronal activity in the dog medulla by stimulation of left atrial receptors (D) 17P

KAPPAGODA, C. T., LINDEN, R. J., SNOW, H. M. and WHITAKER, ELAINE. M. Effect of ablation of the pituitary gland on the diuresis from atrial receptors (D) . 11P

KAPPAGODA, C. T., LINDEN, R. J. and STOKER, J. B., Demonstration of a technique for the continuous determination of oxygen consumption (D) . . 22P

KARIM, F. and HAINSWORTH, R. A method for measurement of changes in abdominal vascular capacity (D). 13P

KARIM, F., HAINSWORTH, R. and STOKER, J. B. Venous and arterial responses in a vascularly isolated dog hind limb (D) 12P

KATZ, H. S. and COLLIER, B. Acetylcholine synthesis from recaptured choline by a sympathetic ganglion 639

KEITH, I. C., KAPPAGODA, C. T., KIDD, C., LINDEN, R. J. and SNOW, H. M. Modifications of neuronal activity in the dog medulla by stimulation of left atrial receptors (D) 17P

KEITH, I. C., KIDD, C., MALPUS, C. M. and PENNA, P. E. Reduction of baroreceptor impulse activity by sympathetic nerve stimulation 61P

KELLY, J. P. and VAN ESSEN, D. C. Cell structure and function in the visual cortex of the cat 515

KEMP, P. A., BENNETT, T. and WILSON, M. F. Serum dopamine-beta-hydroxylase activity: exercise-induced elevation in human subjects 57P

KIDD, C., KAPPAGODA, C. T., KEITH, I. C., LINDEN, R. J. and SNOW, H. M. Modifications of neuronal activity in the dog medulla by stimulation of left atrial receptors (D) 17P

KIDD, C., KEITH, I. C., MALPUS, C. M. and PENNA, P. E. Reduction of baroreceptor impulse activity by sympathetic nerve stimulation 61P

KIDD, C., LINDEN, R. J. and SCOTT, EVELYN M. Single unit activity in renal nerves and its modification by changes in activity in left atrial receptors and baroreceptors (D) 16P

KIDD, C., MALPUS, C. M. and PENNA, P. E. An isolated autoperfused pouch of the subclavian-brachiocephalic baroreceptor area (D) 19P

KNAPP, M. F., HARRY, J. D. and LINDEN, R. J. An attempt to estimate the sympathetic activity to the heart of man in his home environment (D) . . . 15P

KNIBBS, A. V., COTES, J. E., HALL, A. M., JOHNSON, G. R. and JONES, P. R. M. Decline with age of cardiac frequency during submaximal exercise in healthy women (D) 24P

KRETZSCHMAR, K. M., CURTIN, NANCY A., GILBERT, CLAUDE and WILKIE, D. R. The effect of the performance of work on total energy output and metabolism during muscular contraction 455

KŘIZ, N., SYKOVÁ, EVA, UJEC, E. and VYKLICKY, L. Changes of extracellular potassium concentration induced by neuronal activity in the spinal cord of the cat. 1

KURIHARA, S., KURIYAMA, H. and MAGARIBUCHI, T. Effects of rapid cooling on the electrical properties on the smooth muscle of the guinea-pig urinary bladder . 413

KURIYAMA, H., KURIHARA, S. and MAGARIBUCHI, T. Effects of rapid cooling on the electrical properties on the smooth muscle of the guinea-pig urinary bladder . 413

LAW, R. O. [^{14}C]Carboxyl inulin distribution and solute exchanges in incubated slices of rat renal medulla 32P

LEVIN, R. J. and DEBNAM, E. S. Dietary sugars and the maximum absorptive capacity of the small intestine; further evidence for multiple hexose transfer mechanisms 81P

PAGE

LEVINE, D. N., BURKE, R. E., SALCMAN, M. and TSAIRIS, P. Motor units in cat soleus muscle: physiological, histochemical and morphological characteristics 503

LEWIS, P. J., CHALMERS, J. P., DOLLERY, C. T. and REID, J. L. The importance of central adrenergic neurones in renal hypertension in rabbits 403

LINDEN, R. J., FLOYD, K. and SAUNDERS, D. A. The morphological variation of nervous structures in the atrial endocardium of the dog (D) 19P

LINDEN, R. J., HARRY, J. D. and KNAPP, M. F. An attempt to estimate the sympathetic activity to the heart of man in his home environment (D) 15P

LINDEN, R. J., KAPPAGODA, C. T., KEITH, I. C., KIDD, C. and SNOW, H. M. Modifications of neuronal activity in the dog medulla by stimulation of left atrial receptors (D) 17P

LINDEN, R. J., KAPPAGODA, C. T., SNOW, H. M. and WHITAKER, ELAINE M. Effect of ablation of the pituitary gland on the diuresis from atrial receptors (D) . 11P

LINDEN, R. J., KAPPAGODA, C. T. and STOKER, J. B. Demonstration of a technique for the continuous determination of oxygen consumption (D). 22P

LINDEN, R. J., KIDD, C. and SCOTT, EVELYN M. Single unit activity in renal nerves and its modification by changes in activity in left atrial receptors and baroreceptors (D) 16P

LINDEN, R. J., MALPUS, C. M., SAUNDERS, D. A. and SNOW, H. M. Correlation of a cardiovascular reflex response with the auditory evoked potential in the dog during changes of depths of anaesthesia (D) 9P

LINDER, T. M. The accumulative properties of facilitation at crayfish neuromuscular synapses 223

LIPTON, J. M. and CLARK, WESLEY G. Complementary lowering of the behavioural and physiological thermoregulatory set-points by tetrodotoxin and saxitoxin in the cat 181

LITTLE, R. A. The compensation of post-traumatic oedema in the rabbit at different ages 207

LOCKETT, JENNIFER, A., JONES, P. R. M., PEARSON, JEAN and WYNESS, J. The relationship to age of indices of leg muscle and estimated fat-free mass in adult females (D) 6P

LODGE, D., BISCOE, T. J. and HEADLEY, P. M. The pharmacology of the rat Renshaw cell recurrent collateral pathway 49P

LUDGATE, C. M., GALT, JEAN M., PETTIGREW, R. T., SCRATCHERD, T. and SMITH, A. N. Circulatory and electrolyte changes during hyperthermia to 42 °C . 30P

LUMBERS, EUGENIE R., BROUGHTON PIPKIN, FIONA and MOTT, JOAN C. Effects of hypoxia on maternal and foetal renin and angiotensin II in sheep. . . 67P

MCDONALD, W. I., GILLIATT, R. W. and RUDGE, P. The site of conduction block in peripheral nerves compressed by a pneumatic tourniquet 31P

MCKIRDY, H. C. and HIRST, G. D. S. A nervous mechanism for descending inhibition in guinea-pig small intestine 129

MACKNIGHT, A. D. C., PILGRIM, JENNIFER P. and ROBINSON, BRIDGET A. The regulation of cellular volume in liver slices 279

MAGIRIBUCHI, T., KURIHARA, S. and KURIYAMA, H. Effects of rapid cooling on the electrical properties on the smooth muscle of the guinea-pig urinary bladder 413

MALPUS, C. M. On-line computer facility servicing three laboratories (D) . . 20P

MALPUS, C. M., KEITH, I. C., KIDD, C. and PENNA, P. E. Reduction of baroreceptor impulse activity by sympathetic nerve stimulation 61P

MALPUS, C. M., KIDD, C. and PENNA, P. E. An isolated, autoperfused pouch of the subclavian-brachiocephalic baroreceptor area (D) 19P

PAGE

MALPUS, C. M., LINDEN, R. J., SAUNDERS, D. A. and SNOW, H. M. Correlation of a cardiovascular reflex response with the auditory evoked potential in the dog during changes of depths of anaesthesia (D) 9*P*

MASSONNET, B. and CABANAC, M. Temperature regulation during fever; change of set point or change of gain? a tentative answer from a behavioural study in man 561

MATSUBARA, ICHIRO. Light and X-ray diffraction studies on chick skeletal muscle under controlled physiological conditions 473

MAYSTON, P. D. and BARROWMAN, J. A. The trophic influence of cholecystokinin on the rat pancreas. 73*P*

MENYS, V., FOURMAN, JULIA, HAASE, P., HOLLINS, J., NEWMAN, R. and WOO SAM, P. Calcification of the kidney: an experimental study in laboratory rats and gerbils (D) (T). 25*P*

MIYAZAKI, SHUN-ICHI, TAKAHASHI, KUNITARO and TSUDA, KAZUKO. Electrical excitability in the egg cell membrane of the tunicate 37

MIYAZAKI, SHUN-ICHI, TAKAHASHI, KUNITARO, TSUDA, KAZUKO and YOSHII, MITSUNOBU. Analysis of non-linearity observed in the current–voltage relation of the tunicate embryo 55

MØLLGARD, K., MØLLER, M. and SØRENSEN, S. C. The ultrastructure of the carotid body in chronically hypoxic rabbits 447

MØLLER, M., MØLLGARD, K. and SØRENSEN, S. C. The ultrastructure of the carotid body in chronically hypoxic rabbits 447

MORRISON, J. D. and CATTON, W. T. Effects of GABA and inhibitory antagonists on discharges of frog retinal ganglion cells 44*P*

MORRISON, J. F. B. and FLOYD, K. Structures in the mesentery of the cat which stain with methylene blue (D) (T) 7*P*

MORRISON, J. F. B. and FLOYD, K. Interactions between afferent impulses within a peripheral receptive field 62*P*

MORRISON, J. F. B., FLOYD, K., and HARDSTAFF, VERITY E. A preparation for the study of intra-abdominal sensory-receptors (D) 7*P*

MOTT, JOAN C., BROUGHTON PIPKIN, FIONA and LUMBERS, EUGENIE R. Effects of hypoxia on maternal and foetal renin and angiotensin II in sheep. . . . 67*P*

MUKHTAR, A. I., CARNIE, NORAH, POLLOCK, C. G., TAYLOR, D. E. M. and WHAMOND, JOAN S. Impedance spectra change across the aortic valve at different heart rates in the sheep 48*P*

MULLER, K. J. and NICHOLLS, J. G. Different properties of synapses between a single sensory and neurone and two different motor cells in the leech C.N.S. . 357

NEWMAN, R., FOURMAN, JULIA, HAASE, P., HOLLINS, J., MENYS, V. and WOO SAM, P. Calcification of the kidney: an experimental study in laboratory rats and gerbils (D) 25*P*

NICHOLLS, J. G. and MULLER, K. J. Different properties of synapses between a single sensory neurone and two different motor cells in the leech C.N.S.. . 357

NISHIYAMA, A. and PETERSEN, O. H. Pancreatic acinar cells: membrane potential and resistance change evoked by acetylcholine 145

NISHIYAMA, A. and PETERSEN, O. H. Effect of calcium on the potential and resistance change of the pancreatic acinar cell membrane during the action of acetylcholine 55*P*

NOBLE, SUSAN J. and BROWN, HILARY F. Effects of adrenaline on membrane currents underlying pace maker activity in frog atrial muscle 51*P*

OCHOA, J., FOWLER, T. J., GILLIATT, R. W. and RUDGE, P. The anatomical lesion produced by acute nerve compression (D) (T) 25*P*

O'CONNOR, W. J. Experiments on drinking by dogs (T) (D) 1*P*

PAGE

O'Connor, W. J. and Baylis, Christine. Renal excretion of K^+ by the conscious dog 65P

Packard, A. Chromatophore fields in the skin of the octopus 38P

Padmos, Pieter and Gouras, Peter. Identification of cone mechanisms in graded responses of foveal striate cortex 569

Paintal, A. S. Fluid pump of type J receptors of the cat 53P

Part, N. J. and Andrew, B. L. Properties of dynamic β fibres innervating rat caudal segmental muscles 70P

Pearson, Jean, Jones, P. R. M., Lockett, Jennifer A. and Wyness, J. The relationship to age of indices of leg muscle and estimated fat-free mass in adult females (D) 6P

Penna, P. E., Keith, I. C., Kidd, C. and Malpus, C. M. Reduction of baroreceptor impulse activity by sympathetic nerve stimulation 61P

Penna, P. E., Kidd, C. and Malpus, C. M. An isolated, autoperfused pouch of the subclavian-brachiocephalic baroreceptor area (D) 19P

Petersen, O. H. and Nishiyama, A. Pancreatic acinar cells: membrane potential and resistance change evoked by acetylcholine 145

Petersen, O. H. and Nishiyama, A. Effect of calcium on the potential and resistance change of the pancreatic acinar cell membrane during the action of acetylcholine 55P

Pettigrew, R. T., Galt, Jean M., Ludgate, C. M., Scratcherd, T. and Smith, A. N. Circulatory and electrolyte changes during hyperthermia to 42 °C. . 30P

Pickard, D. W., Schaubhut, C. F. and Stevens, C. E. Motility studies of the rabbits' large intestine (D) 2P

Pilgrim, Jennifer P., Macknight, A. D. C. and Robinson, Bridget A. The regulation of cellular volume in liver slices 279

Pollock, C. G., Carnie, Norah, Mukhtar, A. I., Taylor, D. E. M. and Whamond, Joan S. Impedance spectra change across the aortic valve at different heart rates in the sheep 48P

Powis, G., Blakeley, A. G. H. and Summers, R. J. An uptake mechanism for L-noradrenaline in the cat spleen, associated with the nerves but distinct from uptake$_1$ 193

Rautenberg, W. and Hissa, R. The influence of centrally applied noradrenaline on shivering and body temperature in the pigeon 427

Reid, J. L., Chalmers, J. P., Dollery, C. T. and Lewis, P. J. The importance of central adrenergic neurones in renal hypertension in rabbits 403

Reynolds, J. M., Evans, C. A. N., Reynolds, M. L., Saunders, N. R. and Segal, M. B. The development of a blood-brain barrier mechanism in foetal sheep 371

Reynolds, M. L., Evans, C. A. N., Reynolds, J. M., Saunders, N. R. and Segal, M. B. The development of a blood-brain barrier mechanism in foetal sheep 371

Robinson, Bridget A., Macknight, A. D. C. and Pilgrim, Jennifer P. The regulation of cellular volume in liver slices 279

Ruckebusch, Y. and Bueno, L. The cyclic motility of the omasum and its control in sheep 295

Rudge, P., Fowler, T. J., Gilliatt, E. W. and Ochoa, J. The anatomical lesion produced by acute nerve compression (D) (T) 25P

Rudge, P., Gilliatt, R. W. and McDonald, W. I. The site of conduction block in peripheral nerves compressed by a pneumatic tourniquet 31P

PAGE

RUSSELL, T., JENNETT, SHEILA and WARNOCK, KATHLEEN A. The duration of inspiration during changing states of ventilation in man 54P

RUTISHAUSER, SIGRID C. B. and STONE, S. L. Aspects of bile secretion in the rabbit 46P

SALCMAN, M., BURKE, R. E., LEVINE, D. N. and TSAIRIS, P. Motor units in cat soleus muscle: physiological, histochemical and morphological characteristics 503

SAMARDŽIĆ, RANKA and BELESLIN, D. B. Effect of thyroxine on the body temperature after its intraventricular injection into conscious cats 27P

SANDOVER, J. and FLOYD, W. F. Apparatus for the study of the effects of impulsive forces on man (D) 4P

SANFORD, P. A., EGGENTON, JACQUELINE, FLOWER, R. J., HARDCASTLE, P. T. and SMYTH, D. H. Prostaglandins and intestinal function 79P

SAUNDERS, D. A., FLOYD, K. and LINDEN, R. J. The morphological variation of nervous structures in the atrial endocardium of the dog (D) 19P

SAUNDERS, D. A., LINDEN, R. J., MALPUS, C. M. and SNOW, H. M. Correlation of a cardiovascular reflex response with the auditory evoked potential in the dog during changes of depths of anaesthesia (D) 9P

SAUNDERS, N. R., EVANS, C. A. N., REYNOLDS, J. M., REYNOLDS, M. L. and SEGAL, M. B. The development of a blood–brain barrier mechanism in foetal sheep 371

SCANES, C. G. An *in vitro* method for investigating the factors controlling secretion of luteinizing hormone and thyroid stimulating hormone from chicken anterior pituitary glands (T) (D) 2P

SCANES, C. G., BOLTON, N. and CHADWICK, A. Fractionation and assay of chicken prolactin (D) 1P

SCANES, C. G., BOLTON, N. and CHADWICK, A. The effect of thyrotrophin releasing factor on the secretion of thyroid stimulating hormone and prolactin from the chicken anterior pituitary gland 78P

SCHAUBHUT, C. F., PICKARD, D. W. and STEVENS, C. E. Motility studies of the rabbit's large intestine (D) 2P

SCHELLART, N. A. M., SPEKREIJSE, H. and VAN DEN BERG, T. J. T. P. Influence of temperature on retinal ganglion cell response and e.r.g. of goldfish . . 251

SCOTT, EVELYN M., KIDD, C. and LINDEN, R. J. Single unit activity in renal nerves and its modification by changes in activity in left atrial receptors and baroreceptors (D) 16P

SCRATCHERD, T., GALT, JEAN M., LUDGATE, C. M., PETTIGREW, R. T. and SMITH, A. N. Circulatory and electrolyte changes during hyperthermia to 42 °C . 30P

SEGAL, M. B., EVANS, C. A. N., REYNOLDS, J. M., REYNOLDS, M. L. and SAUNDERS, N. R. The development of a blood-brain barrier mechanism in foetal sheep . 371

SHAKHNOVICH, A. R. and THOMAS, J. G. Micro-tremor of the eyes as an index of motor unit activity, and of the functional state of the brain stem . . . 36P

SMITH, A. N., GALT, JEAN M., LUDGATE, C. M., PETTIGREW, R. T. and SCRATCHERD, T. Circulatory and electrolyte changes during hyperthermia to 42° C . . 30P

SMITH, MARGARET E., BROWN, MARGARET D., COTTER, MARY, HUDLICKA, OLGA and VRBOVA, GERTA. The effect of long-term stimulation of fast muscles on their ability to withstand fatigue 47P

SMYTH, D. H., EGGENTON, JACQUELINE, FLOWER, R. J., HARDCASTLE, P. T. and SANFORD, P. A. Prostaglandins and intestinal function 79P

SNART, R. S. and FRITH, D. A. Effect of prostaglandins on water transport across the isolated toad bladder 43P

PAGE

SNOW, H. M., KAPPAGODA, C. T., KEITH, I. C., KIDD, C. and LINDEN, R. J. Modifications of neuronal activity in the dog medulla by stimulation of left atrial receptors (D). 17P

SNOW, H. M., KAPPAGODA, C. T., LINDEN, R. J. and WHITAKER, ELAINE M. Effect of ablation of the pituitary gland on the diuresis from atrial receptors (D) 11P

SNOW, H. M., LINDEN, R. J., MALPUS, C. M. and SAUNDERS, D. A. Correlation of a cardiovascular reflex response with the auditory evoked potential in the dog during changes of depths of anaesthesia (D) 9P

SØRENSEN, S. C., MØLLER, M. and MØLLGARD, K. The ultrastructure of the carotid body in chronically hypoxic rabbits 447

SPEKREIJSE, H., SCHELLART, N. A. M. and VAN DEN BERG, T. J. T. P. Influence of temperature on retinal ganglion cell response and E.R.G. of goldfish . . 251

STEVENS, C. E., PICKARD, D. W. and SCHAUBHUT, C. F. Motility studies of the rabbit's large intestine (D) 2P

STOKER, J. B., HAINSWORTH, R. and KARIM, F. Venous and arterial responses in a vascularly isolated dog hind limb (D) 12P

STOKER, J. B., KAPPAGODA, C. T. and LINDEN, R. J. Demonstration of a technique for the continuous determination of oxygen consumption (D) . . . 22P

STONE, S. L. and RUTISHAUSER, SIGRID C. B. Aspects of bile secretion in the rabbit 46P

STONER, H. B. Inhibition of thermoregulatory non-shivering thermogenesis by trauma in cold-acclimated rats 657

STRICHARTZ, GARY and HENDERSON, RICHARD. Ion fluxes through the sodium channels of garfish olfactory nerve membranes 329

SUMMERILL, R. A. The effects of a meat meal on glomerular filtration rate and urea excretion in the conscious dog 64P

SUMMERILL, R. A. and BAYLIS, CHRISTINE. Collection of blood and urine from conscious dogs (T) (D) 1P

SUMMERS, R. J., BLAKELEY, A. G. H. and POWIS, G. An uptake mechanism for L-noradrenaline in the cat spleen, associated with the nerves but distinct from uptake$_1$ 193

SWAMINATHAN, R. The inhibitory effect of pentagastrin on intestinal calcium absorption 75P

SWAMINATHAN, R. and FOX, J. The use of a Thiry Vella loop of jejunum to measure calcium absorption rate in conscious pigs (D) 3P

SYKOVÁ, EVA, KŘÍŽ, N., UJEC, E. and VYKLICKÝ, L. Changes of extracellular potassium concentration induced by neuronal activity in the spinal cord of the cat 1

TAKAHASHI, KUNITARO and HAGIWARA, SUSUMU. Mechanism of anion permeation through the muscle fibre membrane of an elasmobranch fish, *Taeniura lymma* 109

TAKAHASHI, KUNITARO, MIYAZAKI, SHUN-ICHI and TSUDA, KAZUKO. Electrical excitability in the egg cell membrane of the tunicate 37

TAKAHASHI, KUNITARO, MIYAZAKI, SHUN-ICHI, TSUDA, KAZUKO and YOSHII, MITSUNOBU. Analysis of non-linearity observed in the current–voltage relation of the tunicate embryo 55

TAYLOR, D. E. M., CARNIE, NORAH, MUKHTAR, A. I., POLLOCK, C. G. and WHAMOND, JOAN S. Impedance spectra change across the aortic valve at different heart rates in the sheep 48P

THOMAS, J. G. and SHAKHNOVICH, A. R. Micro-tremor of the eyes as an index of motor unit activity, and of the functional state of the brain stem 36P

THOMAS, R. C. Intracellular pH of snail neurones measured with a new pH-sensitive glass micro-electrode 159

PAGE

To'MEY, G. F., ATWEH, S. F., BANNA, N. R. and JABBUR, S. J. Polysensory interactions in the cuneate nucleus 343

TSAIRIS, P., BURKE, R. E., LEVINE, D. N. and SALCMAN, M. Motor units in cat soleus muscle: physiological, histochemical and morphological characteristics 503

TSUDA, KAZUKO, MIYAZAKI, SHUN-ICHI and TAKAHASHI, KUNITARO. Electrical excitability in the egg cell membrane of the tunicate 37

TSUDA, KAZUKO, MIYAZAKI, SHUN-ICHI, TAKAHASHI, KUNITARO and YOSHII, MITSUNOBU. Analysis of non-linearity observed in the current voltage relation of the tunicate embryo 55

UJEC, E., KŘÍŽ, N., SYKOVÁ, EVA and VYKLICKÝ, L. Changes of extracellular potassium concentration induced by neuronal activity in the spinal cord of the cat 1

VAN DEN BERG, T. J. T. P., SCHELLART, N. A. M. and SPEKREIJSE, H. Influence of temperature on retinal ganglion cell response and E.R.G. of goldfish . 251

VAN ESSEN, D. C. and KELLY, J. P. Cell structure and function in the visual cortex of the cat 515

VENABLES, C. W., BLAIR, E. L. and WILKINSON, J. Gastric relaxation in the dog in response to feeding 72*P*

VRBOVA, GERTA, BROWN, MARGARET, D., COTTER, MARY, HUDLICKA, OLGA and SMITH, MARGARET E. The effect of long-term stimulation of fast muscles on their ability to withstand fatigue 47*P*

VYKLICKÝ, L., KŘÍŽ, N., SYKOVÁ, EVA and UJEC, E. Changes of extracellular potassium concentration induced by neuronal activity in the spinal cord of the cat 1

WAITE, PHIL M. E. and BROWN, A. W. S. Responses in the rat thalamus to whisker movements produced by motor nerve stimulation 387

WALSH, E. G., GILLINGHAM, F. J. and WRIGHT, G. W. Resonance at the wrist in Parkinsonism – changes induced by stereotaxic surgery. 37*P*

WARNOCK, KATHLEEN A., JENNETT, SHEILA and RUSSELL, T. The duration of inspiration during changing states of ventilation in man. 54*P*

WHAMOND, JOAN S., CARNIE, NORAH, MUKHTAR, A. I., POLLOCK, C. G. and TAYLOR, D. E. M. Impedance spectra change across the aortic valve at different heart rates in the sheep 48*P*

WHITAKER, ELAINE M., KAPPAGODA, C. T., LINDEN, R. J. and SNOW, H. M. Effect of ablation of the pituitary gland on the diuresis from atrial receptors (D) 11*P*

WIDDICOMBE, J. H. and BRADING, ALISON F. An estimate of sodium/potassium pump activity and the number of pump sites in the smooth muscle of the guinea-pig taenia coli, using [^{3}H] ouabain 235

WILKIE, D. R., CURTIN, NANCY A., GILBERT, CLAUDE and KRETZSCHMAR, K. M. The effect of the performance of work on total energy output and metabolism during muscular contraction 455

WILKINSON, J., BLAIR, E. L. and VENABLES, C. W. Gastric relaxation in the dog in response to feeding. 72*P*

WILSON, H. and ECCLES, R. The autonomic innervation of the nasal blood vessels of the cat 549

WILSON, M. F., BENNETT, T. and KEMP, P. A. Serum dopamine-beta-hydroxylase activity: exercise-induced elevation in human subjects 57*P*

WOLEDGE, ROGER C. and CURTIN, NANCY A. Energetics of relaxation in frog muscle 437

PAGE

Woo Sam, P., Fourman, Julia, Haase, P., Hollins, J., Menys, V. and Newman, R. Calcification of the kidney: an experimental study in laboratory rats and gerbils (D) 25P

Wood, E. H., Allen, D. G. and Jewell, B. R. The rested state contraction and action potential of cat papillary muscle 29P

Woog, R., Bennett, M. R. and Florin, T. The formation of synapses in regenerating mammalian striated muscle 79

Wyness, J., Jones, P. R. M., Lockett, Jennifer, A. and Pearson, Jean. The relationship to age of indices of leg muscle and estimated fat-free mass in adult females (D) 6P

Yoshii, Mitsunobu, Miyazaki, Shun-Ichi, Takahashi, Kunitaro and Tsuda, Kazuko. Analysis of non-linearity observed in the current-voltage relation of the tunicate embryo. 55

SUBJECT INDEX

Abdominal circulation, method for measurement of changes in abdominal vascular capacity (dog), 13*P*

Acetylcholine, a statistical analysis of the release of – at newly formed synapses in striated muscle (rat), 93

– synthesis from recaptured choline by a sympathetic ganglion, 639

pancreatic acinar cells: membrane potential and resistance change evoked by –, 145

Acetylcholine receptors, the pharmacology of the rat Renshaw cell recurrent collateral pathway, 49*P*

Adrenaline, effects of – on membrane currents underlying pace maker activity in frog atrial muscle, 51*P*

Adrenergic neurones, the importance of central – in renal hypertension in rabbits, 403

Anaesthesia, correlation of a cardiovascular reflex response with the auditory evoked potential in the dog during changes of depths of –, 9*P*

Angiotensin, peptide antagonists of the renin-angiotensin system and the elucidation of the receptors for angiotensin-induced drinking, (rat) 34*P*

Anion permeation, mechanism of – through the muscle fibre membrane of an elasmobranch fish, *Taeniura lymma*, 109

Antidiuretic response, effect of ablation of the pituitary gland on the diuresis from atrial receptors (dog), 11*P*

Anthropometry, the relationship to age of indices of leg muscle and estimated fat-free mass in adult females, 6*P*

Aortic valve, impedance spectra change across the – at different heart rates in the sheep, 48*P*

Atrial endocardium, the morphological variation of nervous structures in the – of the dog, 19*P*

Auditory evoked response, correlation of a cardiovascular reflex response with the auditory evoked potential in the dog during changes of depths of anaesthesia, 9*P*

Autonomic nerve, the autonomic innervation of the nasal blood vessels of the cat, 549

Baroreceptors, an isolated, autoperfused pouch of the subclavian-brachiocephalic baroreceptor area (dog), 19*P*

reduction of – impulses activity by sympathetic nerve stimulation 61*P*

Bile secretion, aspects of – in the rabbit, 46*P*

Blood-brain barrier, the development of a mechanism in foetal sheep, 371

Body composition, the relationship to age of indices of leg muscle and estimated fat-free mass in adult females, 6*P*

Brown adipose tissue, inhibition of thermoregulatory non-shivering thermogenesis by trauma in cold-acclimated rats, 657

Calcium, effect of – on the potential and resistance change of the pancreatic acinar cell membrane during the action of acetylcholine (rat, mouse), 55*P*

Calcium absorption, the inhibitory effect of pentagastrin on intestinal – (pig), 75*P*

the use of a Thiry Vella loop of jejunum to measure – rate in conscious pigs, 3*P*

Calcium fluxes, studies of radiocalcium efflux in single barnacle muscle fibres: effects of procaine and external divalent cations, 313

Calcitonin, stimulation of – secretion by strontium (pig), 76*P*

Cardiovascular reflex, correlation of a – response with the auditory evoked potential in the dog during changes of depths of anaesthesia, 9*P*

Cardiovascular system, cardiovascular alterations associated with bursts of panting in the exercising dog, 17

Carotid body, the ultrastructure of the – in chronically hypoxic rabbits, 447

Caudal muscle, properties of dynamic β fibres innervating rat caudal segmental muscles, 70*P*

Cell volume, the regulation of cellular volume in liver slices (rat), 279

Chick, light and X-ray diffraction studies on – skeletal muscle under controlled physiological conditions, 473

Cholecystokinin, the trophic influence of – on the rat pancreas, 73*P*

Choline, acetylcholine synthesis from recaptured – by a sympathetic ganglion, 639
Chromatophores, chromatophore fields in the skin of the octopus, 38*P*
Cochlear nerve fibres, the effects of hypoxia on the tuning of single –, 65*P*
Colour vision, identification of cone mechanisms in graded responses of foveal striate cortex (Rhesus monkey), 569
opponent-colour cells in different layers of foveal striate cortex (Rhesus monkey), 583
Computers, on-line computer facility servicing three laboratories, 20*P*
the use of small departmental – in teaching and research, 22*P*
Conduction block, the site of – in peripheral nerves compressed by a pneumatic tourniquet (baboon), 31*P*
Cone mechanisms, identification of – in graded responses of foveal striate cortex (Rhesus monkey), 569
Cuneate nucleus, polysensory interactions in the – (cat), 343
Cupulometry, an evaluation of – as a predictor of susceptibility to motion sickness, 60*P*
Current–voltage relations, analysis of non-linearity observed in the – of the tunicate embryo, 55

Dopamine-beta-hydroxylase, serum – activity; exercise-induced elevation in human subjects, 57*P*
Drinking, peptide antagonists of the renin-angiotensin system and the elucidation of the receptors for angiotensin-induced –, (rat), 34*P*
Dynamic β fibres, properties of – innervating rat segmental muscles, 70*P*

Egg cell, electrical excitability in the – membrane of the tunicate, 37
Elasmobranch fish, mechanism of anion permeation through the muscle fibre membrane of an –, *Taeniura lymma*, 109
Electroretinogram, influence of temperature on retinal ganglion cell response and E.R.G. of goldfish, 251
Excitability, electrical – in the egg cell membrane of the tunicate, 37
Exercise, cardiovascular alterations associated with bursts of panting in the exercising dog, 17
decline with age of cardiac frequency during submaximal – in healthy women 24*P*
serum dopamine-beta-hydroxylase activity: exercise-induced elevation in human subjects, 57*P*
the duration of inspiration during changing states of ventilation in man, 54*P*
Eye movements, vestibulo-ocular and optokinetic reactions to rotation and their interaction in the rabbit, 603

Facilitation, the accumulative properties of – at crayfish neuromuscular synapses, 223
Fatigue, the effect of long-term stimulation of fast muscles on their ability to withstand – (rabbit), 47*P*
Fever, temperature regulation during –: change of set point or change of gain? a tentative answer from a behavioural study in man, 561
Foetal hypoxia, effects of hypoxia on maternal and foetal renin and angiotensin II in sheep, 67*P*
Foetal sheep, the development of a blood-brain barrier mechanism in –, 371

Gamma-amino butyric acid, effects of – and inhibitory antagonists on discharges of frog retinal ganglion cells, 44*P*
Ganglion cell, influence of temperature on retinal – response and E.R.G. of goldfish, 251
Gas analysis, new techniques for calibrating the Lloyd–Haldane apparatus, 627
Gastric motility, gastric relaxation in the dog in response to feeding, 72*P*
Gastrin, the action of gastrin-like polypeptides on the peristaltic reflex in guinea-pig intestine, 68*P*
Glomerular filtration rate, the effects of a meat meal on – and urea excretion in the conscious dog, 64*P*

Heart, an attempt to estimate the sympathetic activity to the – of man in his home environment, 15*P*
Heart muscle, effects of adrenaline on membrane currents underlying pace maker activity in frog atrial muscle, 51*P*
Hexose absorption, dietary sugars and the maximum absorptive capacity of the small intestine; further evidence for multiple hexose transfer mechanisms 81*P*
Hyperglycaemia, morphine – (cat), 487

Hyperthermia, circulatory and electrolyte changes during – to 42 °C, 30*P*
Hypothalamus, stereotaxic placement of cannula guides in the brain of sheep, 2*P*
Hypoxia, the effects of – on the tuning of single cochlear nerve fibres, 65*P*
the ultrastructure of the carotid body in chronically hypoxic rabbits, 447

Impulsive forces, apparatus for the study of the effects of – in man, 4*P*
Inhibition, a nervous mechanism for descending – in guinea-pig small intestine, 129
Inspiratory time, the duration of inspiration during changing states of ventilation in man, 54*P*
Intestinal absorption, dietary sugars and the maximum absorptive capacity of the small intestine; further evidence for multiple hexose transfer mechanism, 81*P*
Intestine, prostaglandins and intestinal function, 79*P*
Intracellular pH, – of snail neurones measured with a new pH-sensitive glass micro-electrode, 159
Ion fluxes, – through the sodium channels of garfish olfactory nerve membranes, 329

Large intestine, motility studies of the rabbit's –, 2*P*
Leech, different properties of synapses between a single sensory neurone and two different motor cells in the leech C.N.S., 357
Left atrial receptors, modifications of neuronal activity in the dog medulla by stimulation of –, 17*P*
single unit activity in renal nerves and its modification by changes in activity in – and baroreceptors (dog), 16*P*
Light-scattering, – associated with the short-range elastic component of resting frog's muscle, 40*P*
Liver, the regulation of cellular volume in – slices (rat), 279
Lloyd-Haldane apparatus, new techniques for calibrating the –, 627

Mechanoreceptors, a preparation for the study of intra-abdominal sensory-receptors (dog), 7*P*
Medulla, modifications of neuronal activity in the dog – by stimulation of left atrial receptors, 17*P*
Membrane resistance, pancreatic acinar cells: membrane potential and resistance change evoked by acetylcholine, 145
Metabolism, the effect of the performance of work on total energy output and – during muscular contraction, 455
Morphine, – hyperglycaemia (cat), 487
Motility, – studies of the rabbit's large intestine, 2*P*
the cyclic – of the omasum and its control in the sheep, 295
Motion sickness, demonstration of a technique for the treatment of intractable –, 8*P*
Motor unit, relationships between motor nerve conduction velocities and – contraction characteristics in a slow twitch muscle of the cat, 269
Motor units – in cat soleus muscle: physiological, histochemical and morphological characteristics, 503
Motor unit activity, micro-tremor of the eyes as an index of –, and of the functional state of the brain stem, 36*P*
Muscle, light-scattering associated with the short-range elastic component of resting frog's –, 40*P*
mechanism of anion permeation through the – fibre membrane of an elasmobranch fish, *Taeniura lymma*, 109
motor units in cat soleus –: physiological, histochemical and morphological characteristics, 503
studies of radiocalcium efflux in single barnacle muscle fibres: effects of procaine and external divalent cations, 313
the effect of long-term stimulation of fast muscles on their ability to withstand fatigue (rabbit), 47*P*
the rested state contraction and action potential of cat papillary –, 29*P*
Muscle spindle, evidence for innervation of muscle spindle intrafusal fibres by branches of α motoneurones following nerve injury, 41*P*
Muscular contraction, the effect of the performance of work on total energy output and metabolism during –, 455

Nasal vasculature, the autonomic innervation of the nasal blood vessels of the cat, 549
Nerve ending, the morphological variation of nervous structures in the atrial endocardium of the dog, 19*P*

Nerve injury, evidence for innervation of muscle spindle intrafusal fibres by branches of α motoneurones following–, 41*P*

Neuromuscular junction, the accumulative properties of facilitation at crayfish neuromuscular synapses, 223

Neurones, cell structure and function in the visual cortex of the cat, 515

different properties of synapses between a single sensory neurone and two different motor cells in the leech C.N.S., 357

intracellular pH of snail – measured with a new pH-sensitive glass micro-electrode, 159

L-noradrenaline, an uptake mechanism for – in the cat spleen, associated with the nerves but distinct from uptake$_1$, 193

Noradrenaline, the influence of centrally applied – on shivering and body temperature in the pigeon, 427

Octopus, chromatophore fields in the skin of the –, 38*P*

Ocular tremor, micro-tremor of the eyes as an index of motor unit activity and of the functional state of the brain stem, 36*P*

Oedema, the compensation of post-traumatic – in the rabbit at different ages, 207

Olfactory nerve, ion fluxes through the sodium channels of garfish – membranes 329

Omasum, the cyclic motility of the – and its control in sheep, 295

Oocytes, the effect of ouabain, low temperature and exposure to Li solutions on cation fluxes in amphibian –, 71*P*

Optokinetic reflexes, vestibulo-ocular and optokinetic reactions to rotation and their interaction in the rabbit, 603

Ouabain, an estimate of sodium/potassium pump activity and the number of pump sites in the smooth muscle of the guinea-pig taenia coli, using [^{3}H] ouabain, 235

Oxygen consumption, demonstration of a technique for the continuous determination of–, 22*P*

Pancreas, effect of calcium on the potential and resistance change of the pancreatic acinar cell membrane during the action of acetylcholine (rat, mouse), 55*P*

pancreatic acinar cells: membrane potential and resistance change evoked by acetylcholine, 145

the trophic influence of cholecystokinin on the rat –, 73*P*

Panting, cardiovascular alterations associated with bursts of – in the exercising dog, 17

Papillary muscle, the rested state contraction and action potential of cat – 29*P*

Parkinsonism, resonance at the wrist in – changes induced by stereotaxic surgery, 37*P*

Pentagastrin, the inhibitory effect of – on intestinal calcium absorption (pig), 75*P*

Peristaltic reflex, the action of gastrin-like polypeptides on the peristaltic reflex in guinea-pig intestine, 68*P*

Pigeon, the influence of centrally applied noradrenaline on shivering and body temperature in the –, 427

Pituitary gland, effect of ablation of the – on the diuresis from atrial receptors (dog), 11*P*

Polysensory interactions, – in the cuneate nucleus (cat), 343

Potassium, changes of extracellular – concentration induced by neuronal activity in the spinal cord of the cat, 1

renal excretion of K^+ by the conscious dog, 65*P*

Prolactin, fractionation and assay of chicken –, 1*P*

Prostaglandins, effect of – on water transport across the isolated toad bladder, 43*P*

Striate cortex, direction selective subregions in striate simple cell receptive fields, 25*P*

identification of cone mechanisms in graded responses of foveal – (Rhesus monkey), 569

Striated muscle, a statistical analysis of the release of acetylcholine at newly formed synapses in – (rat), 93

the formation of synapses in regenerating mammalian – (rat), 79

Strontium, stimulation of calcitonin secretion by – (pig), 76*P*

Subclavian-brachiocephalic perfusion, an isolated, autoperfused pouch of the subclavian-brachiocephalic baroreceptor area (dog), 19*P*

Sympathetic activity, an attempt to estimate the – to the heart of man in his home environment, 15*P*

Sympathetic ganglion, acetylcholine synthesis from recaptured choline by a –, 639
Sympathetic nerve, reduction of baroreceptor impulse activity by – stimulation, 61*P*
Synapse formation, a statistical analysis of the release of acetylcholine at newly formed synapses in striated muscle (rat) 93
the formation of synapses in regenerating mammalian striated muscle (rat), 79

Temperature regulation – during fever: change of set point or change of gain? a tentative answer from a behavioural study in man, 561
Tetrodotoxin, complementary lowering of the behavioural and physiological thermoregulatory set-points by – and saxitoxin in the cat, 181
Thalamus, responses in the rat – to whisker movements produced by motor nerve stimulation, 387
Thermogenesis, inhibiting of thermoregulatory non-shivering thermogenesis by trauma in cold-acclimated rats, 657
Thermoregulation, complementary lowering of the behavioural and physiological thermoregulatory set-points by tetrodotoxin and saxitoxin in the cat, 181
effect of thyroxine on the body temperature after its intraventricular injection into conscious cats, 27*P*
the influence of centrally applied noradrenaline on shivering and body temperature in the pigeon, 427
Thyrotrophin releasing factor, the effect of – on the secretion of thyroid stimulating hormone and prolactin from the chicken anterior pituitary gland, 78*P*
Thyroxine, effect of – on the body temperature after its intraventricular injection into conscious cats, 27*P*
Tourniquet, the site of conduction block in peripheral nerves compressed by a pneumatic – (baboon), 31*P*
Trauma, inhibition of thermoregulatory non-shivering thermogenesis by – in cold-acclimated rats, 657
the compensation of post-traumatic oedema in the rabbit at different ages, 207
Tunicate, electrical excitability in the egg cell membrane of the –, 37
Tunicate embryo, analysis of non-linearity observed in the current-voltage relation of the –, 55

Urea excretion, the effects of a meat meal on glomerular filtration rate and – in the conscious dog, 64*P*
Urinary bladder, effects of rapid cooling on the electrical properties on the smooth muscle of the guinea-pig, 413

Vascular capacity, a method for measurement of changes in abdominal – (dog), 13*P*
Venous tone, venous and arterial responses in a vascularly isolated dog hind limb, 12*P*
Vestibulo-ocular reactions, vestibulo-ocular and optokinetic reactions to rotation and their interaction in the rabbit, 603
Vidian nerve, the autonomic innervation of the nasal blood vessels of the cat, 549
Vision, direction selective sub-regions in striate simple cell receptive fields, 25*P*
Visual cortex, cell structure and function in the – of the cat, 515
identification of cone mechanisms in graded responses of foveal striate cortex (Rhesus monkey) 569
opponent-colour cells in different layers of foveal striate cortex (Rhesus monkey), 583
Volume, the regulation of cellular – in liver slices (rat), 279

Water transport, effect of prostaglandins on – across the isolated toad bladder, 43*P*
Whisker movement, responses in the rat thalamus to – produced by motor nerve stimulation, 387
Work, the effect of the performance of – on total energy output and metabolism during muscular contraction, 455
Wrist, resonance at the – in Parkinsonism changes induced by stereotaxic surgery, 37*P*